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Railway Age

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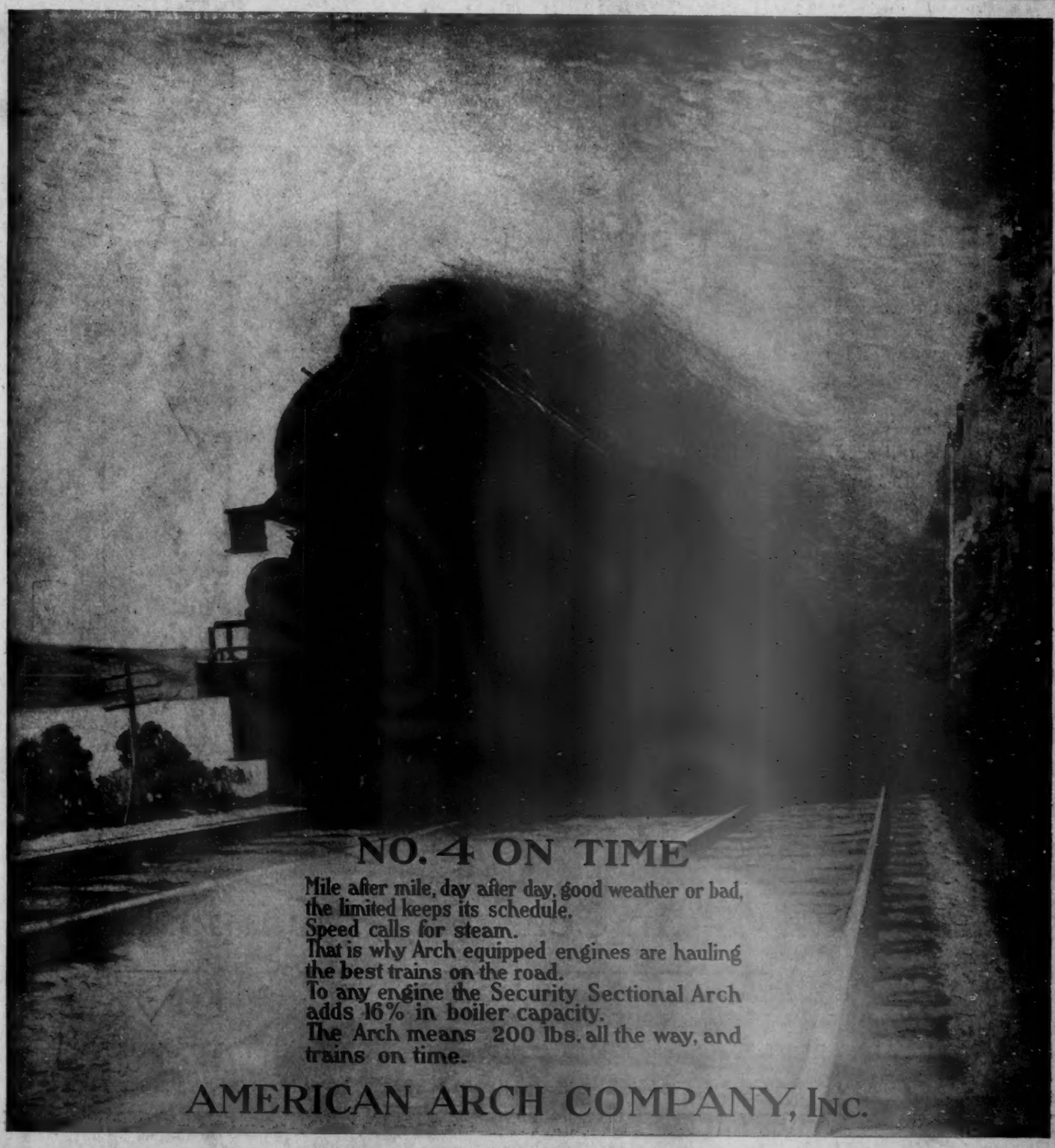
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Alphabetical Index to Advertisements, Page 70 Classified Directory of Advertisers, Page 66

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EDITORIAL

Railway Age

The Table of Contents Will Be Found on Page 5 of the Advertising Section

All railroads have some form of train order signal to indicate to a train crew that orders are being held for delivery, but this equipment is not always designed so that they can make the most efficient use of it to indicate whether a "19" or a "31" order is to be delivered. This slows down operation and increases operating costs whenever a train stops for a "19" order. Unlike automatic signals, the location of a train order signal is fixed at or near the telegraph office without reference to the fact that this location may be at the top of or on a heavy grade or at a point where other physical handicaps make a stop undesirable. Consequently, if no advance information is furnished a train crew, it must of necessity slow down to a speed much lower than would otherwise be required or come to a full stop if the operator should have a "19" order to deliver and fail to get out with it in time. A three-position train order signal, properly used, will enable these unnecessary stops to be eliminated and promote train operation.

Service from Train Order Signals

During the past few years the railways, as well as other industrial organizations, have been faced, first, with a scarcity of labor and then as a result of the first, with high priced labor. As a consequence of this combination of circumstances, the labor charge per unit of work soon became excessive. In the efforts to control these rising costs, the possibilities of mechanical devices as substitutes for labor have received close attention; there is a vast amount of work on the railways which lends itself readily to the application of such machines. There are certain general principles of application which should be observed as necessary to the success of any material handling installation. One of the most important of these is the training of the actual user of the equipment, not only in the mechanical features of the machine he operates, but particularly in its possibilities. This training is especially important where operating conditions are changing, where no two methods of use are followed by equal results, and in those instances where the new idea originates with the higher officers and the subordinates are apt to be partial to the old methods. Such a policy should end in better results from a particular installation, in overcoming the opposition on the part of the workmen to the introduction of new methods and, if carried to the ultimate conclusion by requiring reports from the trained operators, in many valuable suggestions bearing on the purchases of new equipment.

Operators of Handling Devices Should be Trained

One of the points which have been stressed in discussions regarding the undermaintenance of tracks during government control, and to some extent since that period, has been the inadequate amount of rail renewals. Even though the railways have attempted, so far as their financial position would permit, to remedy this condition in recent months it has been only partially met as yet. With this the case, it is of distinct interest to the managements of the railroads that rail renewals be handled in the most economical manner. At the present time the methods of laying rail vary considerably and what is more to the point, the differences in the costs per mile of laying rail of approximately the same weight under similar traffic conditions are sometimes astonishingly large. One reason for this is that some railroads are employing practically the same methods for laying rail weighing 100 lb. or more per yard that they used for laying 60-lb. to 65-lb. rail. In contrast to this, other roads have developed and put into practice many improvements over the old methods while a few have reduced rail laying to an almost scientific basis. This is not a problem solely for the maintenance of way department to solve but is one the solution of which will only come through the full co-operation of the managements.

The Managements' Interest in Rail Renewals

The action of the Baldwin Locomotive Works in advancing credits to the extent of $2,500,000 to the Mexican government with the prospect of the further extension of a similar amount affords the most encouraging evidence of a real understanding of America's position in foreign trade. The first credit will go toward the purchase of 65 locomotives for the National Railways and the loan in prospect will be used for general rehabilitation of the railways. Baldwin's action is encouraging from several points of view. It means an important contract for a railway equipment concern which is welcome in these days when business in general is struggling to return again to activity. It means the recognition by a powerful American concern of the fact that with conditions in the world as they are today, America must extend credit if it wishes to export its products in important quantities. It means a great step toward the rehabilitation of the Mexican railways and incidentally, toward general economic revival in Mexico. The news from Mexico has been increasingly encouraging of late months. Affairs there are rapidly approaching normal and it seems not unlikely that Mexico may before many years be in a much happier condition than ever before. It is gratifying that Americans should play an important part in speeding this revival. Friendship built up in this manner is not destroyed overnight. Far-seeing action such as the Baldwin people have taken is laying a firm foundation for a mutually profitable international trade and for cordial diplomatic relations between this country and Mexico.

Baldwin and Mexico

The principal purpose of material handling equipment is to serve other machines. For instance, in railway shops the cranes, trucks, tractors, trailers, etc., find their usefulness in working in conjunction with the production machines. In freight handling the analogy is not so marked, still, even in this service it is the function of the handling machines to supplement other equipment. It is evident that mere capability to perform certain operations is not enough to warrant the installation of a particular device for such operations. On the contrary, it is exceedingly important that the entire process of production be given careful consideration in conjunction with the handling problem before a decision is reached, to make sure not only of the selection of the best machine for

The Function of Material Handling Devices

a particular purpose but to insure the best possible co-ordination between the handling machinery and the other equipment. In this connection it is worthy of notice that reputable manufacturers of handling equipment hold themselves ready and anxious to give purchasers of equipment the benefit of their experience in the carrying on of the necessary preliminary studies and, as well, their co-operation in solving any operating problems that may arise after an installation is made. By availing themselves of this co-operation, purchasers of handling equipment may profit by the mistakes of others, while the manufacturers benefit through increased sales resulting from successful installations.

The C. & O. in June

One of the outstanding features of the operating statistics of large steam roads for June, reported by the Interstate Commerce Commission is the showing made by the Chesapeake & Ohio. This carrier is the only one in the list of 51 roads whose figures are given—those having annual operating revenues in excess of $25,000,000—that moved as many net ton-miles of freight in June, 1921, as in June, 1920. The larger part of the roads did considerably less business, in some cases 20 or 25 per cent less, in June this year than in June last year. The Chesapeake & Ohio, however, in June, 1921, carried 1,072,786,000 net ton-miles as against 1,039,845,000 in June, 1920. June was the busiest month that the Chesapeake & Ohio has had so far this year and the business handled in June was greater also than that handled in any month in the first half of 1920. The Chesapeake & Ohio suffered severely in February and March this year, when its traffic fell off in rather an alarming fashion; the traffic handled in June was nearly double that handled in February. The recovery in the amount of traffic on the road has naturally been shown in the gross and net earnings. The net railway operating income in June was $1,944,753. This compared with a net in June, 1920, of $245,461; it was approximately double that of most of the other months in the first half of either 1921 or 1920. The character of the recovery since the dull period of February will be evidenced by the fact that in February the road had a net operating deficit of $556,636. Because of the dull months earlier in 1921, however, the net railway operating income for the first six months of 1921 was only $5,041,319 as compared with $5,483,768 in the first half of 1920.

Magistrates Do Not Punish Tramps

The repression of the tramp nuisance on the railroads is a duty of the state rather than the towns and cities; municipal officers are too easy, and the nuisance is not abated. This is a conclusion that was reached by careful students of the question several years ago; but since the advent of war-time conditions the matter has dropped out of sight. Now, however, with increased numbers of men out of work, the same old conditions are returning. A local paper in western Massachusetts, referring evidently to conditions on the Boston & Albany, said recently:

> Industrial depression in the western part of the country is driving men east and they are coming by way of "blind baggage" to such an extent that a toll of them is taken each day by the local police. There will be several arraigned in court to-morrow morning and their plea will be "no work," as has been the cry of the many taken from trains in the past two months. It has been the custom of the court to deal lightly with these offenders, and they are usually passed on to some other municipality that perhaps does the same. During the last industrial depression train riders became so numerous taht the court was forced to place a heavy fine on them in order to rid this section and the railroad of their presence. It was found, however, that the charge on the county institutions was too great and that it was cheaper to allow them to go.

On the Gulf Coast Lines in Louisiana, a few weeks ago, an observer counted 20 tramps on an eastbound freight. This was at De Quincy, near the Texas line. An hour later the train, in which were oil cars, was derailed, took fire and was mostly destroyed in a 24-hour fire; and it was believed that 15 of these men were killed in the flames. "Dealing lightly with offenders," as referred to in the above news item, is a deep seated weakness of government which nobody seems able to cope with, except perhaps for brief periods, in very limited territory. The manager of one big American railroad remarked, not long ago, that attempts at train wrecking were reported to him by his subordinates on an average once *every week*. Only the most thorough police establishment can have much effect on an evil like that. Read over again the above-quoted paragraph and show it to members of your legislature and other public spirited citizens. To cease punishing law breakers, because the jails are costing too much, is a queer situation; but that idea will be found lodged in many local magistrates' minds.

Problem of Good Manual Block Signaling

The annual statement of block-signal mileage issued by the Interstate Commerce Commission, noticed on another page, contains a large amount of valuable data, as interested readers are well aware, but the original purpose of the publication, to show the degree of progress made year by year, in the introduction of the block system, is of no great interest just now; for there is progress in only a few spots. On the other hand, those features of these elaborate tables which disclose the need of progress, where but little has been accomplished, continue to stand out prominently. For example, the list of manual block signal stations shows in nearly every item a large percentage of stations which are closed a part of each day; the block sections have to be lengthened, wherever and whenever possible, because of the necessity of extreme economy in signalmen's wages. This is not necessarily an evil, per se, but the general situation serves to emphasize the need, to which attention has many times been called, of greatly improving much of our manual block signal practice. Patchwork and halfway measures are tolerated, where a true and complete block system ought to be installed. In this situation two important elements should be kept in mind: first, that the federal government—that is, the Bureau of Safety of the Interstate Commerce Commission—affords the only suitable instrumentality for setting forth the actual conditions, adequately; and second, that the correction of existing dangers and weaknesses of manual block signal operation is largely a question of administration—of the use of brains and energy—rather than of expenditures for plant or apparatus. There is no need of deferring action until the advent of easier money.

The Commission's Rate-Making Policy

THE EMBARRASSMENT caused, and the harm done, by regulating railways on principles foreign to sound business methods is illustrated by the opinion rendered by the Interstate Commerce Commission on August 3 in the live stock rate case.

For years after effective government regulation of rates began the railways tried to get the rates based mainly on "what the traffic would bear." What the traffic will bear is measured chiefly by the value of the service rendered to the shipper. The railways contended that rates never should be made higher than the shipper could reasonably afford to pay, but that if they were reasonable in proportion to what he could afford to pay they should not be reduced, even though the railways were making a large profit by charging them. They also maintained that if the traffic could easily bear higher rates, there was no economic or legal reason why the railways should not be allowed to advance the rates, even

though the advance in rates enabled the railways to earn more than the minimum profit which the courts held to be the least return to which they could constitutionally be restricted.

This argument of the railways was for years contested, and successfully contested, by the shippers. Most of them contended that the value of the service rendered to the shipper not only should not be made the principal basis of the regulation of rates, but that it should be treated as a comparatively unimportant factor. A reasonable rate, they claimed, was one based upon the cost incurred by the railways in rendering service to the shipper. The cost incurred by the railways included operating expenses, taxes and a "fair return upon a fair valuation." If the rates charged by a railway were sufficient to cover the cost of the service, as thus defined, there was, according to their view, no justification for an advance in rates.

The Interstate Commerce Commission, in the rate advance cases decided by it down to 1917, accepted this "cost of service" theory of rate-making. In consequence, the average freight rate remained stationary or declined, while prices of all commodities were advancing. The average freight rate per ton per mile of the railways of the country was the same in 1917 as in 1913. Meantime, average wholesale prices of farm products increased 89 per cent, and average wholesale prices of all commodities increased 76 per cent.

The tendencies of railway rates and of the prices of commodities, especially farm products, have been sharply reversed within the last year. The average railway rate per ton per mile is now about 74 per cent higher than in 1913; the average wholesale prices of all commodities about 50 per cent higher, and average prices of farm products about 13 per cent higher. Producers of live stock have been suffering severely from the decline in their prices. They therefore appealed to the Interstate Commerce Commission for a reduction of live stock rates. They contended that the rates should be reduced solely because, owing to the advance in rates and the decline in the prices of live stock, the rates had become relatively so high that the shippers of live stock could not afford to pay them. In other words, they contended that the rates had become excessive in proportion to the value of the service. They did not contend the rates were excessive in proportion to the cost incurred by the railways in rendering the service of transporting live stock. No such contention could have been supported with any evidence. All the evidence showed that, measured by the cost of the service, the rates were too low, not too high.

The Interstate Commerce Commission in its decision frankly recognized the dilemma in which the evidence placed it. It pointed out that in a long series of decisions it had held that "the right of a railroad to charge a certain sum for freight does not depend at all upon the fact whether its customers are making or losing by their business." It pointed out that on the basis of the "cost of the service" there could be no justification for a reduction of live stock rates since, on account of their high expenses of operation, the railways under the present rates had fallen far short of earning enough to cover their operating expenses and taxes and the annual net operating income set as a mark by Congress—and by the Commission itself.

On this reasoning it is difficult to see how the Commission could have reached any conclusion other than that it should not order, or even suggest, that the rates on live stock should be reduced. Nevertheless, without entering any order, the Commission did suggest to the carriers a substantial reduction in these rates. Furthermore, Commissioners McChord and Campbell dissented from the majority opinion and contended that the rates should be ordered reduced, the latter expressly basing his view upon the ground that the rates are too high in proportion to the value of the service rendered.

What action the railways will take is yet to be determined. The inconsistency of the Commission's suggestion in this case with its decisions in past years is, however, only too plain. It refused in past years to allow the railways to advance their rates when the traffic could bear higher rates, but it now suggests to them that they should reduce the rates because they are too high in proportion to what the traffic can bear. Formerly it refused advances in rates upon the ground that the cost of rendering the service had not increased enough to justify the advances, and now it suggests reductions in rates regardless of the fact that the cost of rendering the service is so high that the railways cannot afford to reduce them.

There are commodities whose prices are so low in proportion to the present railway rates that the rates are relatively high measured by the value of the service rendered in transporting them. This is especially true of the prices of and rates on live stock. There are other commodities whose prices are still so high that they could easily bear further advances in rates. For example, according to the statistics of the Bureau of Labor, the average prices of house furnishings in April were 174 per cent more than in 1913, and the average prices of building materials 103 per cent more. The price of coal at the mouth of the mine at Fairmont, W. Va., on August 1, was 131 per cent more than in 1913. The price of brick was 118 per cent more.

Since the Commission suggests reductions in the rates on live stock because of the low prices of live stock, it would be only consistent for it to authorize advances in the rates on house furnishings, coal, brick and other commodities, the prices of which are still so high relatively that they easily could stand higher rates.

The Commission has express instructions from Congress to so fix rates as to enable the railways to earn an average return of at least 5½ per cent. The railways for almost a year have patiently done the best they could under rates fixed by the Commission which have yielded them an average return of only about 2½ per cent. How does the Commission reconcile its suggestions for reductions in some rates, and its failure to suggest advances in other rates, with the duty given it by Congress to enable the railways to earn an average return of at least 5½ per cent?

Railway expenses are gradually going down. Not only are the prices of some commodities still so high that they could stand much higher rates, but the prices of some commodities which declined lately have recently been advancing, including those of some important farm products. Since the Commission now suggests that, regardless of the high operating costs of the railways and the enormous losses they have been incurring, the railways reduce live stock rates to help the producer of live stock, what attitude is it going to take in the future if there are radical changes in the relations between railway costs and the prices of commodities? Suppose business conditions become such that the railways, without in any instance charging rates that are relatively high in proportion to what the traffic can bear, can make average net earnings which greatly exceed 5½ or 6 per cent. Since the Commission now suggests that they shall reduce certain rates when for almost a year they have been earning only 2½ per cent, will it in future help them to maintain rates which, without exceeding what the traffic can bear, may conceivably enable them to earn an average of, say, 8 or 10 per cent?

The *Railway Age* has no criticism to offer if the Commission intends to change its past policy and in future permit rates to be based on "what the traffic will bear." But the Commission will be guilty of the grossest inconsistency, and lay itself wide open to the most destructive criticism, if it pursues a policy of basing rates on what the traffic will bear when railway costs are high, and of then basing them on the cost of the service when railway costs have been reduced.

Extraordinary Changes in Freight Business

NOTHING COULD BETTER illustrate the peculiar conditions now existing in general business than the contrast between the facts regarding the movement of freight of various kinds on the railways at present and the facts regarding the movement of the same kinds of freight a year ago. Many people believe there has been a decline in all kinds of freight. This is not true. Throughout the present year there have been increases as compared with last year in the shipments of some kinds of freight and decreases in the shipments of other kinds of freight.

The freight rates which have been the most bitterly attacked are those on farm products. The western state railroad commissions, led by the Kansas commission, have started proceedings for extensive reductions in grain rates before the Interstate Commerce Commission. They claim that the traffic will not bear the rates and that therefore as long as the rates remain in effect the farmers cannot produce grain at a profit. Curiously enough, as has been pointed out in these columns before, grain shipments throughout the present year have shown larger increases than those of any other commodities. In the four weeks ended August 6, the total carloads of grain shipped were 246,938 as compared with 146,440 in the same weeks of 1920, an increase of almost 70 per cent. There has also been loud complaint that the farmers could not ship their live stock under present rates. The shipments of live stock in these same four weeks were 101,159 carloads as compared with 105,022 in the same weeks of 1920, a decrease of less than 4 per cent. There has been a large increase in shipments of merchandise. In the four weeks mentioned they were 836,098 carloads as compared with 753,947 carloads last year, an increase of almost 11 per cent.

Compare the foregoing figures with those regarding shipments of some other commodities. Comparing the four weeks ended August 6, 1921, with the same weeks of 1920, coal shipments declined from 793,536 carloads to 596,620 carloads, or about 25 per cent. Shipments of coke declined from 51,501 carloads to 15,994, or almost 70 per cent. Shipments of forest products declined from 239,287 carloads to 175,335 carloads, or almost 20 per cent. Shipments of ore declined from 308,775 carloads to 127,300 carloads, or over 60 per cent. Shipments of miscellaneous unclassified commodities declined from 1,344,857 carloads to 1,042,197 carloads, or over 30 per cent.

These figures disclose that the present freight traffic of the railways is due to changes as compared with last year varying all the way from an increase of 70 per cent in grain shipments to a decrease of 60 per cent in ore shipments and of 70 per cent in coke shipments.

Many people are trying to convince themselves and others that present business conditions are largely, or even mainly, due to the present railway rates. But the advances in railway rates made since 1917 have been horizontal increases, and therefore have been relatively the same upon all classes of commodities. If the advances in railway rates have produced such an immense effect upon general business, how does it happen that with relatively the same increases in rates upon all commodities, shipments of some commodities are now 70 per cent greater than a year ago while shipments of other commodities are 70 per cent less than they were a year ago?

The wide differences in the changes that have occurred in the shipments of the various classes of commodities show that the present business situation is due in only a small measure to railway rates and mainly to other conditions. Undoubtedly the main reason why the shipments of some kinds of commodities have greatly increased while those of other commodities have greatly declined is that the process of readjustment has been carried much farther in some lines of industry than in others. The increases in railway rates cannot, however, have materially hastened the process of readjustment in some industries or retarded it in others, simply because the increases in railway rates have been uniform as to all classes of commodities.

With grain shipments 70 per cent greater than they were a year ago and coal shipments 25 per cent less, forest products shipments 20 per cent less, ore shipments 60 per cent less and coke shipments 70 per cent less, it is quite plain that the public must look to other influences than to any possible reduction in railway rates to cause a return of general business activity.

Protecting the Investment

IN THE LAST TWO ISSUES we have referred to the direct interest which the railways have in the extensive program of highway construction which has been undertaken over the country. This interest arises from the large investment which they have made and are making in these roads through taxation in one form or another. It has been estimated by competent authorities that the amount available for highway construction work this year is approximately $1,400,000,000 or over six per cent of the total investment in the railways of the entire United States. Once this investment has been made, the railways are interested in seeing that it is protected and that the structures resulting therefrom are used in the manner for which they were designed, and in the way to secure the greatest return from the expenditure.

When a railway constructs a line, its structures are designed by trained engineers to carry the loads which it is desired to move over it. With the completion of the road, the loads are limited rigidly to those for which the structures have been designed. If conditions develop which make it desirable to transport heavier loads or make higher speeds, they are permitted only after the structures have been strengthened accordingly.

In our last issue the lack of engineering design of the highways into which these hundreds of millions of dollars are being poured was referred to. As a result there is little relation between the roads which are built, local conditions under which they are constructed, and the traffic which they are to bear. But this is not all. After the road is completed with public funds little or no attempt is made to limit the loads or the speeds at which they are transported. Any truck operator is at liberty to haul any load he desires and under any conditions which he sees fit to impose, without regard to the effect on the road which has been provided for him free of expense by the railways and other taxpayers. Such a disregard of engineering principles would be suicidal on a railway; and it is equally so on a highway. The result is that this large investment is being dissipated in large measure, for these highways are failing in many instances after only three or four years of service, and frequently after an interval that represents only a fraction of the period for which they are bonded.

In a report made by the automobile clubs of California, it is stated that on 49.8 per cent of the highways in southern California serious failure has already begun or is far advanced. While California is one of the few states which have passed laws limiting the weight of trucks it has quite generally failed to enforce this requirement. The report states that "it is apparent that if truck operators are permitted to use the highways without police supervision a few unreasonable truck drivers or operators will wreck any road system that may be built. Thinking people recognize that such a policy is improper, short-sighted and suicidal. It is equally important that speed regulations should be enforced for trucks, for the speeds at which these heavy loads travel on

public highways produce impact and these shocks are especially destructive to the pavements." The report further states that "we have not only a heritage of bad roads, but an upkeep cost which is prohibitive. In one instance the upkeep after four years has equaled the original cost. The evidence shows that in the rebuilding of one road they (state forces) destroyed with their own trucks more miles than they repaired."

As to the future, the report states that "We must expect enormously increased truck traffic. Wheel loads and speeds will increase unless legislation and larger license fees prevent. The Commission believes that until inspectors are appointed by the state to enforce the law, the highways are bound to suffer from overloading. It seems incredible that in the face of such a record of destruction of the state pavements these persistent, unreasonable and illegal loads should be continuously permitted to traverse our highways. There has been practically no serious attempt made on the part of either state or county authorities to enforce the laws that have been provided by our legislature for the protection of these roads."

If this condition was confined to California it would be serious enough, but it is typical in large measure of conditions which prevail all over the country. It constitutes a serious indictment of the public authorities under whose direction these roads are being built and maintained. The railways, because of their large contribution to these funds, can and should insist on the development of proper standards of construction and, what is even more important, on the limitation of the loads and the speeds to those for which the roads have been designed. Without such limitations the investment will be dissipated very quickly, while those who pay the bills will still have the heritage of large bond issues outstanding and of heavier taxes to meet their interest and maturities.

St. Louis Southwestern

THE ST. LOUIS SOUTHWESTERN was one of the few railroad companies that declined to accept the government guaranty for the period from March 1 to August 31, 1920. It was one of the still fewer roads declining the guaranty that estimated the possibilities and probabilities of its situation correctly and came out ahead in the struggle against the adverse conditions of railroad operation for which 1920 will be only too well remembered. The factor which enabled it to meet the increased expenses of operation resulting from the high wage scales of Decision No. 2, etc., was an extraordinary expansion of traffic of which with efficient operation the road was able to take advantage to an unusual extent.

The company's decision not to accept the guaranty followed upon a dispute with the Railroad Administration wherein the road contended that the property had been inadequately maintained during the period of federal control. The road's officers felt, on the return of the carrier to private control, that the road was considerably below the proper standard of maintenance, and that large sums must be spent for restoration. Being unable to secure from the Interstate Commerce Commission commitments as to what amount of money would be allowed for maintenance under the provisions of the guaranty, the company decided to go ahead "on its own." The following figures show the road came out ahead in the amount of $1,900,039, of which $1,593,285 was devoted to excess maintenance expenditures.

It will be remembered that the increase in wages in Decision No. 2 was announced on July 19 and was made retroactive to May 1. The increase of rates in Ex Parte 74 was not effective until August 26 and not until later in the case of some of the intrastate rates. The St. Louis Southwestern had to contend, therefore, with the increase in wages for four months of the guaranty period without having the advantage of the higher rates. The wage increase has been estimated by the officers of the St. Louis Southeastern to have added something like $900,500 to its expenses during the guaranty period. When these circumstances are considered,

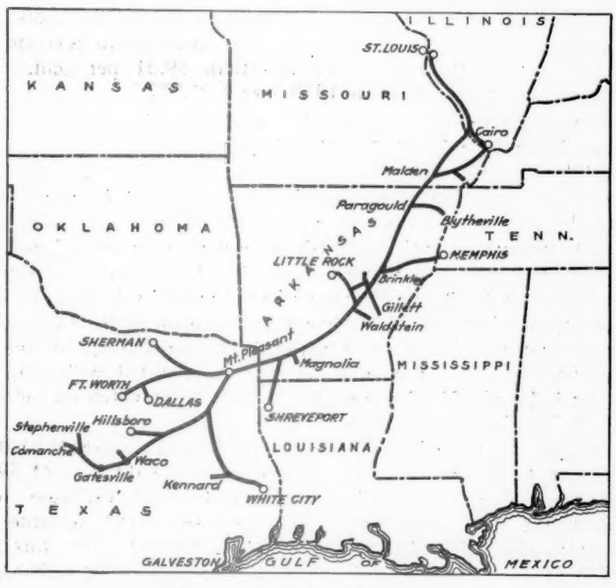
Accounts	March 1 to August 31, 1920. On Basis of Non-Acceptance of Federal Guaranty	On Basis of Acceptance of Federal Guaranty
Operating revenues	$14,511,930	$14,511,930
Operating expenses	12,077,251	10,483,966*
Net revenue from railway operations	$2,434,679	$4,027,964
Tax accruals and uncollectible railway revenues	525,281	525,281
Railway operating income	$1,909,398	$3,502,683
Non-operating income—net	346,369**	346,369**
Gross income	$2,255,767	$3,849,052
Amount of guaranty	....	1,943,013
Amount that would have reverted to government had the federal guaranty been accepted	....	$1,900,039
Excess income over amount of guaranty disregarding credit due account maintenance expenditures in excess of estimated federal allowance	$ 306,754	
Excess maintenance expenditures	1,593,285	
Total in excess of guaranty	$1,900,039	

*If the guaranty under the Transportation Act of 1920 had been accepted the company would have been restricted in its expenditures for maintenance of way and structures and maintenance of equipment to an amount set up by the United States Railroad Administration as sufficient. On this basis $1,593,285 would have been eliminated from operating expenses for the period, March 1 to August 31, 1920, thereby increasing the amount to be turned over to the United States government.

**Excludes corporate non-operating income account not contributing to guaranty income.

the fact that the road came out $306,754 ahead on its decision after having spent $1,593,285 for excess maintenance, is nothing less than remarkable.

Referring now to the operations of the year as a whole, it should be noted that the St. Louis Southwestern is again



The St. Louis Southwestern

an exception in that as compared with 1919 it increased its operating revenues in 1920 in greater percentage than its operating expenses. The total operating revenues in 1920 were $31,020,958, as compared with $20,661,163 in 1919, an increase of 50.14 per cent. Operating expenses in 1920 were $25,886,056 as compared with $18,497,241 in 1919, an increase of 39.95 per cent. For the entire year the road had to meet increased wage costs in the amount of some

$1,900,000 but in the last four months it also had the advantage of higher rates. In addition, it carried a record traffic throughout most of the year and did not suffer a decline in its traffic until rather later than most roads. Speaking now of the St. Louis Southwestern alone and omitting for the moment the St. Louis Southwestern of Texas, thus taking into consideration 968 miles of the system's total of 1,775, it is interesting to observe that the road's standard return for the period of federal control was $3,355,749. In 1918, it had a net railway operating income of $3,628,950, or including the ties inserted in January and February which brought the total up to 777,612, an increase of 130,111, as compared with 1919. There was $158,138 spent for tie plates, and there were applied 74,718 cubic yards of ballast. The road spent $560,581 for application of drain tile, widening cuts, etc. There were laid 75 miles of 85 lb. rail replacing worn 75 lb. rail. Of the total of $3,271,924 mentioned above $2,524,823 was spent on maintenance of way and structures and $747,101 for maintenance of equipment. In addition the road during the year purchased 20 new Consolidation

ST. LOUIS SOUTHWESTERN OPERATING RESULTS 1912-1920

	Freight revenue	Total operating revenue	Operating expenses	Net operating revenue	Operating ratio	Revenue tons	Revenue ton miles	Average haul	Revenue train load	Revenue car load	Miles per car per day
Year ended June 30:											
1912	$8,971,114	$12,042,543	$8,419,415	$3,623,128	69.92	3,408,054	835,722,979	245	292	15.05	26.66
1913	9,864,490	13,296,950	9,215,797	4,081,153	69.31	3,657,964	871,985,756	238	300	15.27	28.22
1914	9,295,143	12,791,904	9,833,801	2,958,104	76.88	3,495,537	830,028,078	237	294	15.37	25.54
1915	7,891,642	10,627,861	8,361,154	2,266,707	78.67	3,187,267	747,474,244	235	304	15.47	19.78
1916	9,183,185	12,224,449	8,406,786	3,817,664	68.77	3,745,130	891,104,359	238	344	15.97	24.83
Year ended Dec. 31:											
1916	10,369,943	13,850,130	9,318,306	4,531,825	67.28	4,009,498	956,572,396	239	351	16.36	30.15
1917	13,062,975	17,309,657	10,896,860	6,412,797	62.95	4,996,813	1,270,829,273	254	431	18.59	34.08
1918	14,365,854	19,588,761	15,840,615	3,748,146	80.87	4,872,201	1,240,619,003	255	450	21.03	22.81
1919	15,821,318	20,661,163	18,497,241	2,163,921	89.53	4,760,210	1,140,459,526	240	463	19.50	22.49
1920	25,280,354	31,020,958	25,886,056	5,134,902	83.45	6,356,708	1,815,775,668	286	523	21.86	30.36

in other words, it exceeded the government rental. In 1919 it had a net of $3,077,808. In 1920, while operating for 10 months on its own account, it had a net railway operating income of no less than $6,001,829. Referring again to the St. Louis Southwestern as a system, it will be noted that the corporate income account in 1920 showed a net of $2,959,837, *all of which* was appropriated for investment in physical property. The net corporate income in 1919 was $1,345,909.

It has been noted above that the property was assisted in 1920 by an extraordinary expansion of its traffic. The total revenue tonnage in 1920 was 6,356,708 as compared with 4,760,210 tons carried in 1919 or 4,996,813 carried in 1917, the best previous year. As compared with 1919 there was an increase of 33.54 per cent. The increase in revenue ton mileage, however, was no less than 59.21 per cent. The revenue ton mileage in 1920 was 1,815,775,668. The 1919 figure was 1,140,459,526; the 1917 total was 1,270,829,273. The road's average haul in 1920 was 286 miles; in 1919 it was 240 miles; in 1917, 254 miles.

The St. Louis Southwestern's tonnage is rather diversified. In 1920 products of agriculture constituted 16.24 per cent of the total revenue tonnage; products of animals, 1.05 per cent; products of mines, 21.02 per cent; products of forests, 28.65 per cent, and manufactures, 33.04 per cent. As compared with 1919, the tonnage of products of mines in 1920 showed an increase of 100 per cent. The tonnage of refined petroleum and its products, which in 1920 made up 7.82 per cent of the total tonnage of the road, represented an increase over 1919 of 121.37 per cent.

It is quite natural to expect that with an increase in total revenue tonnage of 33.54 per cent and an increase of 59.21 per cent in revenue ton mileage there should have been compensating increases in revenue train load, revenue car load, etc. The average revenue train load in 1920 was 523 as compared with 463 in 1919, 450 in 1918, 431 in 1917, etc. The average revenue load per loaded car was 21.86 as compared with 19.5 in 1919. The St. Louis Southwestern ranks well with the other roads in its territory in these matters. The progressive increase in the figures, however, is possibly of even greater importance.

In view of the fact that the St. Louis Southwestern spent large sums for the rehabilitation of its property during 1920, it is worth while to see just what work was carried out. The details as given in the annual report, show that between March 1 and December 31 there was spent on major items of maintenance and betterment work the sum of $3,271,924. This included the purchase and application of 642,505 ties, freight locomotives, of which 10 were received before the close of the year.

The operating results 1920 as compared with 1919 are as follows:

	1920	1919
Mileage operated	1,776	1,755
Freight revenue	$25,280,354	$15,821,318
Passenger revenue	4,026,709	3,819,762
Total operating revenue	31,120,958	20,661,163
Maintenance of way expenses	6,326,553	4,127,516
Maintenance of equipment	6,717,152	5,220,162
Traffic expenses	755,704	314,114
Transportation expenses	10,898,597	7,880,833
General expenses	1,109,259	902,361
Total operating expenses	25,886,056	18,497,241
Net operating revenue	5,134,902	2,163,921
Taxes	1,247,677	853,182
Operating income	3,885,448	1,396,557

The corporate income account is as follows:

	1920	1919
Standard return (January and February, 1920, full year 1919)	$651,819	$3,910,914
Railway operating income (10 mos.)	3,970,947	.....
Non-operating income	1,534,298	656,740
Gross income	6,105,478	4,570,653
Interest on funded debt	2,236,888	2,250,490
Total deductions from gross income	3,145,642	3,224,744
Net income	2,959,837	1,345,909
Income appropriated for investment in physical property	2,959,837	.....

New Books

The Engineering Index, 1920. 586 *pages, 7 in. by 9½ in. Published by the American Society of Mechanical Engineers, 29 West Thirty-ninth street, New York.*

The Engineering Index, which was published from 1892 to 1917, inclusive, by the Engineering Magazine Company and since then by the American Society of Mechanical Engineers, has for many years been recognized as the standard reference index to current engineering literature, and is practically indispensable to those who have frequent occasion to look up articles which have been written on subjects in this field. The completeness of the index is shown by the fact that the volume for the year 1920 covers nearly 14,000 articles from some 700 engineering and technical publications, together with society proceedings. Most of these are in English, but the more important articles in French, German and other languages are included also. The subject matter is arranged in alphabetical order with convenient main and sub-heads and gives a concise description of the substance of each article. The railway field is well covered and includes references to articles on management, operation, construction, maintenance, stations, freight handling, yards, track, maintenance of way, shops, locomotives, cars, etc.

Letters to the Editor

Remedies for Wastes in Railway Operation

New York.

To the Editor:

Referring to the article by F. J. Lisman under the above title in the *Railway Age* of July 9, 1921.

In some respects there is a distinct difference between the measure of a rate which is satisfactory to the shipper and the measure of a rate which is compensatory to the carrier, and the difficulty which confronts the traffic official is to balance one against the other and to so adjust the rates that the application thereof will result in the maximum volume of business at the maximum net return.

The actual cost of handling a ton of silk is relatively unimportant, but I realize Mr. Lisman has used silk as the extreme at one end of the scale and pig iron at the other end. But with respect to silk it may be interesting to note that the value is so great, the insurance so high and the amount of interest so large that the actual freight rate has practically no bearing, provided the *service* is given by the ocean and rail carriers and, as a matter of fact, the service is almost the same as passenger train time.

I think you are entirely correct in pointing out that practically all the expenses can be reduced to a formula, but although I have personally wrestled with the problem for a number of years I have yet to find a formula which can be applied from year to year.

Some years ago it was customary to price cotton seed at country stations in dollars per ton equal to the current price in cents per gallon of cotton seed oil. That is, if cotton seed oil was 18 cents per gallon it was assumed cotton seed should be priced at $18 per ton. It was a good formula and worked successfully until the market prices on cotton seed meal broke it down.

I do not see any special value in basing traffic expenses upon the gross tonnage handled. I have just seen a steel box car, for which the tare weight is 47,400 lb. but as a vehicle for transporting one load it is worth no more to the traffic official than a car of lighter construction which weighs only 35,000 lb. The traffic man does not want to take the credit for the deadweight tonnage of the cars in which the traffic is moved, and, furthermore, he is not responsible for the construction of the cars except as he may suggest the kind of equipment needed to handle the business of the railroad. I think traffic expenses should be based on gross earnings.

Accounting for maintenance of equipment on the basis of gross tonnage would not throw any light on the situation except as to the locomotives, and I agree with you that this would be a more definite basis than mileage.

In the matter of less-than-carload traffic, it so happens that the gross earnings of the Erie Railroad for the first four months of 1921 on less-than-carload traffic amounted to 8 per cent of the total freight earnings; this is lower than it was before 1919, for the reason that in 1919 the Commission changed the method of reporting merchandise freight and threw into the carload column all cars loaded with as much as 10,000 lb., although under the rates and classification the railroads continued to load and unload traffic moving at less-than-carload rates regardless of the quantity. In other words, they continued to incur the extra expense of handling carload traffic in spite of the change in accounting.

In round figures the average freight rate per ton of the carload traffic handled over the Erie Railroad for the first four months of 1921 was $2.50, while the average earnings per ton on less-than-carload traffic amounted to $8.27 for the same period. Assuming that the cost of loading and unloading a ton of freight at point of origin and at destination is $2.00 each or a total of $4.00, we have as a comparable figure with the carload tonnage a return of $4.27 which is nearly twice as much as the rate per ton earned on carload traffic.

The Erie Railroad claims on less-than-carload traffic, with the exception of one or two items such as boots and shoes and tobacco, are not as great proportionately as on a large volume of carload traffic, such as fresh fruits and vegetables, packing house products and fresh meats and on live stock.

The Erie Railroad has definitely taken the position that the so-called short haul l.c.l traffic, that is to say within a radius of 25 miles of the distributing centers, should be handled by motor trucks or some other system of delivery than the steam railroad. However, the greater responsibility of the steam railroad, as compared with some of the trucks which offer their services, is such that the traffic is forced upon the railroad without solicitation and without any desire to handle it.

As to the car loading of merchandise traffic, it must be remembered that very frequently the cars if not loaded with merchandise would move empty so that quite a substantial portion of the l.c.l. business outside of the 25-mile radius is handled at the lowest cost from a transportation standpoint.

The "sailing day" plan which was so designated during the war was not a new plan but a new phrase was adopted which excited a great amount of prejudice on the part of shippers and was subsequently abandoned. The modern plan, which is in vogue on the Erie Railroad, is to establish certain transfer stations in which all the merchandise is centered, and after being separated according to destination is loaded into solid merchandise cars which are run through from the transfer station to final distributing point.

Not all merchandise traffic is profitable and some of the railroad officials contend that very little is profitable, but that does not permit the carrier to completely ignore the business.

Although in the first four months of 1921 the merchandise tonnage as classified by the Interstate Commission amounted to 2.6 per cent of the tonnage, the revenue amounted to nearly $2,500,000, or nearly $1,000,000 gross revenue from each per cent of tonnage. The only other item that equals this is animals and products of animals, on which the rate per ton is slightly in excess of the rate per ton on merchandise, largely because of the longer haul.

T. C. Powell,
Vice President, Erie Railroad.

The Status of the Chief Clerk

To the Editor:

Commenting on my discussion of the status of the chief clerk, which appeared in *Railway Age* of July 23, page 159, I note in your issue of August 6 an interesting letter signed "Operating Officer" in which the writer advocates the personal handling of more of their own work by railroad officers and says that "to give the chief clerk greater recognition and a definite position in the organization would simply tend to perpetuate and increase what is already one of our greatest weaknesses." He also calls attention to the "limited outdoor experience" of the average chief clerk and asserts that the latter often overrules the recommendations of officers of lower rank than the officer represented by the chief clerk. This operating officer thinks my contentions are reasonable

under the conditions as they exist on the railroads today, but thinks the conditions should be changed.

All the authority that exists or is exercised on the railroads is delegated. It originates, theoretically at least, with the stockholders who are not on the railroad at all, and is delegated by them to the board of directors, who delegate to the president such authority as they think he should have, and so on down the line. Even the section foreman's authority is delegated or relayed to him from the stockholders through a long line of officers.

Nothing but necessity justifies the delegation of duties and responsibilities by anybody but it is a physical impossibility for the average railroad officer to give his personal attention to all his business. He therefore attends personally to as many of the more important matters as the limitations of time will permit. An officer who does not learn to depend on his organization in a general way never gets to the top. The most ignominious failure I ever witnessed was that of a superintendent of motive power on a certain large road, with six or seven divisions in his district, who earnestly endeavored to supervise personally everything that was done in his territory. He had unlimited ambition and enthusiasm and his vitality was remarkable. He worked about 18 hours a day for two or three years but his system was hopeless. The huge number of details with which he struggled single-handed had completely buried him long before he lost his position. His inability to delegate duties and responsibilities was fatal.

When an officer must delegate duties, to whom should they be delegated? Custom makes the chief clerk the recipient in a large measure. If anybody else is better qualified to assume these delegated duties, that person, instead of the chief clerk, should be the recipient; but the chief clerk, by reason of his position, is in close touch with conditions and events and understands the situation better than anybody else excepting the officer he represents. Therefore a multitude of important duties are invariably delegated to him but the recognition that should go with them is withheld.

As to our limited outdoor experience, which is cheerfully admitted, I respectfully submit that the operation of the railroads nowadays is by no means an outdoor problem exclusively. The indoor work that is indispensable represents a large percentage of the total effort required. To be quite frank, how much more does the average officer know about office work than the average chief clerk knows about outdoor work? It is practically impossible for any man to know every phase of railroad work and this fact should not militate against the chief clerk more seriously than against anybody else.

I do not advocate the writing of caustic letters by chief clerks—nor by anybody else. The effect of such letters is nearly always bad. Harmony should be the watchword on the railroads and elsewhere. If the performance of an employee is such that it fails to preserve or promote harmony by promoting the welfare of the railroad, take him off the payroll, but do it pleasantly. The best officers rarely resort to rough tactics.

There is no good reason why the officer in charge should not see a copy of every letter that the chief clerk writes. It has been my practice for years to place on the desk of the officer in charge, each morning, a reading file consisting of carbon copies of all letters written in our office on the previous day. A minimum of his time is required to read these copies and if he finds anything objectionable, necessary action is taken immediately. It would be very indiscreet for me to dictate offensive letters or issue instructions on matters I do not understand, knowing that he would see copies of such letters a few hours after they were written. But his time is valuable and it is my obvious duty to handle as much of the correspondence as I can handle properly so that the maximum amount of his time may be available for his numerous other duties. On my ability to do this and other important work intelligently, I base my claim for recognition, pecuniary and otherwise.

We make mistakes. Everybody does. The chief clerks are far from claiming infallibility but if I should overrule a recommendation of an officer subordinate to my chief and such subordinate officer is confident that I have made a mistake, what prevents his taking the question up with my chief, either orally or by personal letter? I can think of nothing besides a possible suspicion that my chief might have directed me to take that very action. This is really beside the question, however, as the right kind of chief clerk does not approve nor disapprove recommendations of subordinate officers without consulting the officer in charge unless such recommendations involve the violation of rigid instructions from higher officers.

The editorial in the *Railway Age* of July 23 which recites that in the lists of officers of the railways of Great Britain the name of the chief clerk follows that of the officer encourages me to hope that we shall yet be accorded, in this country, the recognition to which I believe we are entitled. Our salaries cannot be compared with the salaries of others on the railroads handling work of equal and less importance and we get no public recognition whatever. We do not ask for a definite place in the organization for we have that—the closest and most confidential relationship with the officers with whom we work. Where is the officer who fails to appreciate the value of a good chief clerk, whether the one he has is good or poor? Why is the chief clerk destined to be appreciated only in private and paid only 50 to 75 per cent of what he is worth to the railroad? I have been asking myself these questions for years. Does anybody know the answers?

CHIEF CLERK.

GOOD BRAKES are as important as a good motor. "The subway trains of the Interborough Rapid Transit Company (New York), running at full speed, can stop in less than half the distance ordinarily required by the best steam railroad express trains."—*Subway Sun.*

SEVENTY-FOOT mail storage cars having become common, the Postmaster General and the Railway Mail Pay Committee (representing the railroads) have petitioned the Interstate Commerce Commission to approve the use of such cars at a pro rata increase over the rate prescribed for 60-foot cars.

Photo by International

A Derailment in France Caused by Train Wreckers

Pennsylvania Challenges Authority of Labor Board

Denies Right of Board to Regulate Working Conditions—Has Agreed with Two-thirds of Its Men

THE PENNSYLVANIA RAILROAD, on Wednesday, August 24, made answer to the recent order of the United States Railroad Labor Board, in which answer the road declares that the company has a lawful right under the Transportation Act to establish rules and working conditions with its employees, and that the contracts entered into by the management and its employees are now in full force and effect; and it asks the board to "set aside and vacate" its recent decision in the case of the Shop Crafts Union. The railroad declares that:

The Board has no right and power to prescribe principles to govern the railroad and its employees in the making of agreements covering rules and working conditions;

The Board has no power to prescribe an election or any other method by which the railroad may ascertain who are the authorized representatives of its employees;

The Board has no power to compel a conference or to prescribe what representatives of employees the railroad shall confer with;

Since the termination of federal control the railroad has endeavored to re-establish with its own employees a contented and harmonious relationship and has offered all classes of employees a voice in matters affecting their welfare through employee representatives of their own selection, whether union or non-union men;

Approximately two-thirds of the employees who are interested in and affected by rules covering working conditions have by vote or otherwise expressed a desire to negotiate rules and working conditions through employee representatives;

Contracts have been entered into between the management and representatives of approximately 150,000 employees;

Since the Board's decision, representatives of the various classes of employees with whom contracts have been made have expressed their satisfaction, not only with the manner of selecting representatives, but also with the rules and working conditions agreed upon;

If the railroad complied with the labor board's decision these contracts would be void "to the great and irreparable injury of the carrier and its employees."

The railroad's application to the labor board follows:

1.—The carrier renews its objections to the jurisdiction which were urged upon the hearing of this cause, and it avers that the board had no power or authority in law (a) to extend the National agreements and (b) after extension and the order of termination as of July 1, 1921, to decide without a hearing on June 27, 1921, upon a further extension. The carrier avers that the National Agreements are as to it and its employees wholly terminated and of no force and effect.

2.—The carrier denies the right and power of the board to prescribe principles, which must in law govern the carrier and its employees in the making of agreements covering working rules and conditions. Notwithstanding this, the carrier has endeavored in negotiations with its employees to adopt and observe such of the said principles as are fundamentally sound and correct.

3.—The carrier notes that the board in this cause decides that it "acquired such jurisdiction" but it declares that "that question is not of prime importance in this case." The board also states, "There is no question of the closed or open shop involved in this dispute and no other real matter of principle. The question involved is merely one of procedure." With these propositions the carrier takes direct issue. If the question is merely one of procedure, the carrier avers that the board has no right or power to set up its judgment or opinion against that of the carrier. Dissatisfaction, whether real or fancied, by certain employees with matters of "mere procedure" should not be tortured into a "dispute" within the purview of Sections 301 and 307 of the Transportation Act. No fear need be entertained of "interruption to the operation of any carrier" because of differences between carrier and employees upon questions of "mere procedure." Disputes under the law, referable to the board, are those of substance and real moment. Reduction of wages, real grievances, unfair, unreasonable, burdensome working rules and conditions are the matters comprehended by the Transportation Act as prolific of "disputes" which might interrupt transportation, to prevent which the Labor Board was created.

4.—The carrier denies the power of the board to prescribe an election, or any other method, by which the carrier may ascertain who are the authorized representatives of its employees; and it avers that it cannot accept as advisory the rules and conditions set forth in the board's decision in this cause. The carrier will, as the occasion requires, accord franchise rights only to its employees in service, or absent upon leave, and will not concede voting qualifications to men who have been laid off or furloughed and who may be engaged in other occupations, or may never return to the service of the carrier. The carrier denies the power of the board to compel a conference or to prescribe what representatives of employees it shall confer with, and it can not accede to the rule prescribed for ascertaining the representative capacity of the spokesmen for unorganized employees.

5.—The carrier states that it has been its policy, since the termination of Federal control, to re-establish with its own employees a contented and harmonious relationship, ever bearing in mind that honest, efficient and economical operation of its lines can be secured only by close and unrestricted co-operation by the management and the employees. With that end in view, it was determined that all classes of employees should have a voice in the administration of matters affecting their welfare, through representatives of their own selection, and that such representatives, whether union or non-union men, should be actual employees. In pursuance of this policy, conferences were held with representatives, duly authorized and designated by the employees in the several crafts.

There are in the service of the carrier at this time approximately 176,000 employees who are interested in and affected by rules covering working conditions, and 117,176 or 66.5 per cent of said employees have by vote or otherwise, as a result of said conferences, expressed a desire to negotiate rules and working conditions through employee representatives. Accordingly, contracts respecting rules and working conditions have been entered into between the carrier and representatives of 149,918 employees, apportioned among the several classes, as follows:

Train and engine service employees	41,396
Clerks and other office, station, storehouse, warehouse, and elevator forces, including engine and train crew callers	39,598
Maintenance of way and structures and shop laborers	40,209
Mechanics, helpers and apprentices, maintenance of equipment and telegraph and telephone	24,078
Signal department employees	2,061
Marine department employees	1,254
Dining car and restaurant employees	1,322
	149,918

6.—Since the decision in this cause, the carrier has held conferences with representatives of the several crafts with whom contracts have been made, for the purpose of ascertaining whether or not in the light of the said decision, said employees were satisfied with the manner of selecting representatives and with the rules and working conditions actually agreed to; and as a result of said conferences, the

said employees, through their representatives, manifested their satisfaction not only with the manner of selecting representatives but also with the rules and working conditions embodied in said agreements.

On August 22, a general conference was held with representatives of employees who had been selected by ballot in accordance with the plan of election submitted by the carrier after the publication of the board's decision No. 119. To this conference at least 250 representatives of System Federation 90, of the American Federation of Labor, employed by the carrier, were invited, but, acting under the instructions of the president of System Federation 90, but few of such representatives attended the conference.

In this connection it may be stated that many of said employee representatives are union men, and in the case of several crafts the entire delegation of elected representatives consists of union men. At this conference the employee representatives again signified their approval of and their satisfaction with the plans and purposes of the management and the contracts which had been duly executed.

7.—The carrier states that the contracts between itself and its employees are in full force and effect, and by their terms the parties thereto have acquired mutual rights and assumed mutual obligations; and that if the carrier complied with the decision of the board in this cause, the said contracts will be void and of no effect, to the great and irreparable injury of the carrier and its employees, parties to the said contracts.

8.—The carrier represents to the board that the rights of the employees who are not parties to the said contracts and who do not want to be bound thereby have not been impaired in any manner, for the reason that they may at any time invoke the aid of the board, if they are of opinion that the rules and working conditions contained in the said contracts, now in effect upon the carrier's lines of railroad, are unfair and unreasonable.

9.—*Wherefore,* the carrier asks that the board vacate and set aside its decision in this cause and find, in pursuance of the Transportation Act (a) that the carrier has the lawful right to establish rules and working conditions in the first instance, either with or without first holding conferences with its employees; and (b) that the contracts respecting rules and working conditions heretofore entered into by the carrier and its employees in the shop crafts are now in full force and effect, without any further action on the part of the carrier and its employees in the said shop crafts.

10.—The carrier hereby makes request of the board for an oral hearing of this application, at which time evidence in support of these allegations of fact will be introduced.

Block Signal Mileage on January 1, 1921

THE INTERSTATE COMMERCE COMMISSION has issued its annual statement of the block signal mileage of the railroads of the United States, showing, for the whole country on January 1, 1921, a total of 101,883.6 miles of road; this varies less than one mile from the total recorded one year before. The totals are:

	Miles of Road		
	Automatic	Manual	Total
1921	38,543.9	63,339.7	101,883.6
1920	37,968.8	63,915.4	101,884.2
	Inc. 575.1	Dec. 575.7	Dec. 0.6

This change, however, is not quite so simple as it appears. In a number of cases automatic signals have been installed in the place of manual signals and the increase under one head exactly equals the decrease under the other; but that such is not the case in the majority of the items is evident from the following brief statement of notable changes in 1920:

NOTABLE CHANGES IN 1920 (MILES OF ROAD)

	Increase		Decrease, nonautomatic
Name of Road	Automatic	Nonautomatic	
Atchison, Topeka & Santa Fe	29.1	....	....
Baltimore & Ohio	25.0	....	20.1
Boston & Maine	....	32.4	....
Chicago, Burlington & Quincy	215.1	....	216.8
Detroit United	1.5	326.7	....
Grand Trunk	10.1	131.3	....
Missouri, Kansas & Texas; Missouri, Kansas & Texas of Texas; and Wichita Falls & Northwestern	93.3	....	2.7
New York, New Haven & Hartford	1.2	19.2	....
Northern Pacific	126.8	....	4.5
Pennsylvania	42.5	....	45.7
Pere Marquette	32.2	....	....
Richmond, Fredericksburg & Potomac	32.2	....	....
Southern Pacific	....	....	129.6
Texas & Pacific	....	139.0	....

The totals of these columns are 609.0 and 648.6 increases (total 1255.6), and 419.4 decrease. This makes a net increase of 836.2 miles. The increase in automatic mileage alone is 33.9 miles greater than the net increase shown in the first comparison. There are, however, numerous increases small in amount, to be added to this, and no less than 144 miles *decrease* in automatics. There is no clear evidence that this indicates the actual discontinuance of any automatic signals; some or all of the items may represent errors in reporting, in one year or the other. Some of these decreases are: C. M. & St. P., 5 miles; Chicago, R. I. & P., 12 miles; C. St. P. M. & O., 4 miles; Empire State Railroad Corporation, 7 miles; Illinois Central, 7 miles; Mahoning & Shenango Railway & Lighting Company, 37 miles; Portland, 38 miles; Washington Southern, 32 miles The last three names do not appear in the report for 1921.

All of the final totals of the tables issued by the Commission are vitiated by the inclusion of several hundred miles of road twice (or in some cases three times) where long sections are operated jointly. These duplications aggregate, as near as we can make out, 731.9 miles of road.

The net total length of road equipped with *automatic* block signals seems to be 38,108 miles. This figure is the one of most immediate interest, in any study of progress, for the reason that the non-automatic block system is operated under such varying rules and often applies to such a small part of the trains that no measure of the value of the system is practicable without a study of the train movements and of the volume of traffic.

In the Commission's Table No. 1 the number of items in which a road is recorded as operating all of its passenger lines under the block system is 57, as compared with 74 items on January 1, 1920; but here, again, the retrogression in many cases is more apparent than real. Part of the discrepancy is due to consolidation of items, as where the Chicago, Milwaukee & St. Paul is reduced from five lines to two lines. Some of the changes are small, as the Baltimore & Ohio (eastern lines) from 100 per cent to 98.1 per cent, indicating, perhaps, a correction of clerical errors.

Seven roads report automatic train stops in use, the Chicago, Rock Island & Pacific (22 miles, double track) being added to the six roads published one year previously.

Different kinds of automatic signals in use are reported in table No. 2, as usual. The length of roads signaled by electro-gas signals is 80 miles less than in 1920. The Pennsylvania reports 103 miles of road signaled with position-light signals. The electric train staff is in service on 382 miles of road, 79 miles less than in 1920. The Louisville & Nashville in 1920 reported 68 miles; this year, nothing.

The report gives the usual data concerning methods and apparatus used with the manual block system; practices in connection with block signaling on manually operated lines, etc., and concerning the use of alternating currents, electric lights, etc., in connection with automatic block signals. Automatic block signals are electrically lighted on 8,153 miles of road, 442 miles more than shown in the preceding report. The telephone is used for train orders on 122,022 miles of road, 2,868 miles more than on January 1, 1920.

The War and Its Effect on French Railway Labor

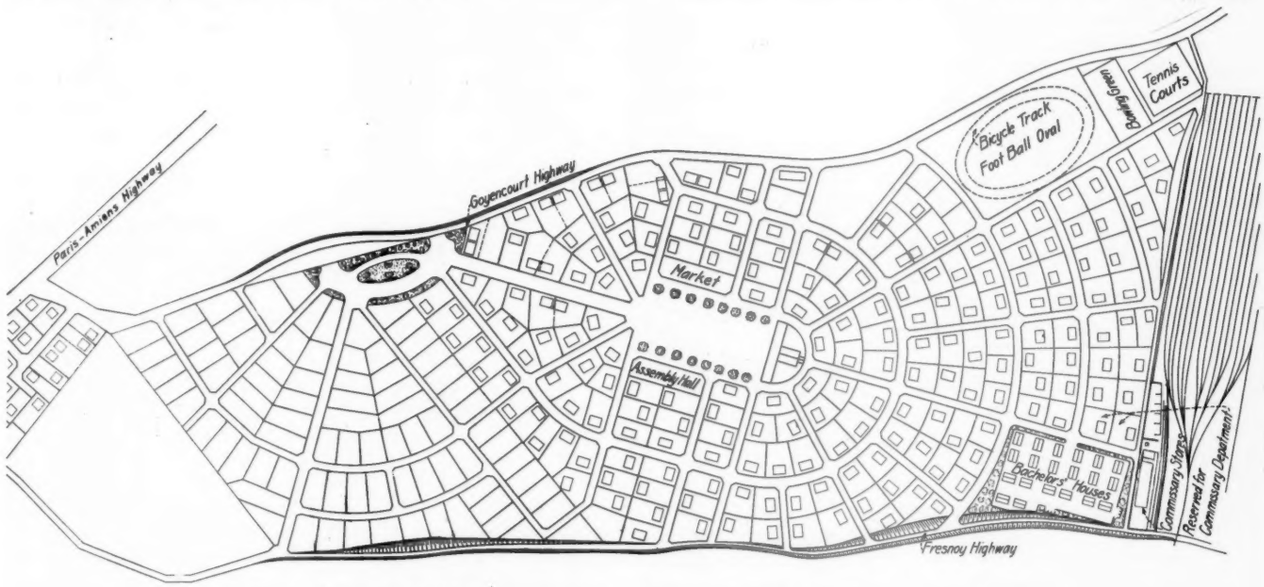
War Time Increases in Pay Not Great—Railways' Extensive Housing Projects—Co-operative Buying

By Oliver F. Allen
Formerly Major of Engineers, American Expeditionary Forces

WHEN FIRST INVESTIGATING the availability of existing manufacturing plants in France as aides to the work of the American army engineers, the writer was surprised to find in a large railway shop at Tours in February, 1918, practically the normal number of apprentices learning their trades just as diligently as if there were no war. It is true that their course was shortened to allow them to start productive work sooner than in the ordinary course but it was, nevertheless, very complete. The managements of the railways realized that trained young men would be needed after the war even more urgently than before. Just as soon as they had a chance to catch their breath after the armistice, railway officers began to study the expansion of their training courses, and at least one of their prominent engineers came to America in 1920 to study intimately our trade schools and apprentice courses.

In the same railway shop at Tours inquiry was made as to migration of workers in quest of different working conditions or higher pay. It was surprising to learn that while the entire plant had the appearance of peace time operation with everyone in civilian clothes it was actually on a military basis. A workman who quit his job in a French railway or other shop doing work essential to the armies during the war was treated as a deserter. When the American engineers established some manufacturing plants for which civilian labor was sought the advantages of this protection was very helpful to the services of supply. The pay for different classes of work throughout the country was standardized and was made the subject of official decrees posted in every community. The base wage was the same throughout the country. It was augmented in certain localities by a surcharge or bonus where essential things cost more at retail than the prices on which base wages were computed. Complete tabulations of the classifications and the base wages and surcharges were promulgated for each department (which corresponds to a state in this country), and in some instances for smaller areas, such as large cities, and posted conspicuously so that working men and women as well as proprietors had free access to them. This protected the working people against underpayment for their work, but its great protection was in guarding the families of men at the front against profiteering not only by the employers of labor but by some workers who stayed at home and sometimes tried to take advantage of the situation for their own greater profit.

In a particular case the local conditions about an American engineering shop were such that some of the employees in a French factory in the same town were disposed to leave it and seek employment with the Americans. As the French factory was manufacturing pumping machinery needed for the water supply of both the French and American armies it was just as important that its production should continue as that that of the American establishment should commence. A conference with the manager of the French plant very quickly solved the problem. No new employee was taken on at either plant without getting his history, and as his card of identification verified his name, etc., it was a simple matter to find out if he was leaving either plant to the detriment of the other. Had American railways and our other home industries been protected by procedure of this sort the tremendous inflation of American costs might not have occurred, and we might not be suffering now from such great strains of readjustment.



Plan of the Industrial Community at Roye, Showing Community Features

French Soldiers Worked While on Leave

The French working man and working woman, realizing that they were all getting a square deal, not only did not fight against this regulation of wages and practical dictatorship over industry during the war, but helped wherever pos-

sible in carrying on the work behind the lines. It would be difficult to imagine the average American soldier as working while on leave, but the majority of the French "poilus" worked ten days out of their fourteen day leaves. So general was this custom that at least one American engineering shop recruited a large part of its civilian employees from French soldiers on leave. Several French merchants and factory managers have told the writer that their businesses were carried on throughout the war largely by their old employees while back on leave.

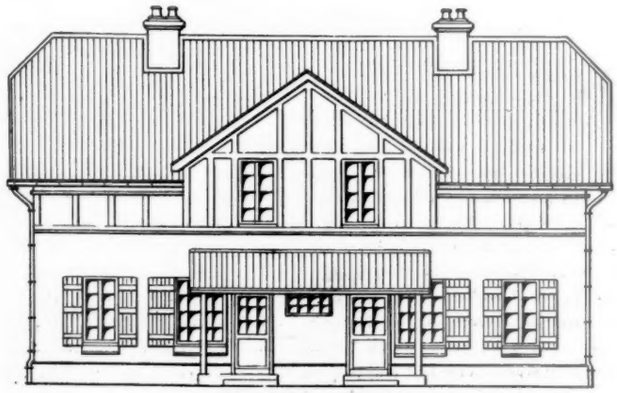
While the Boches were at the very gates of Paris, and the mass of the people did not know if France could hold on until the Americans arrived, the French railways, as well as other industries, did not simply plan for repairs and the replacement of things destroyed by the war, but made a comprehensive program of extensions and betterments co-ordinating with the anticipated renaissance of French industry and commerce. The items in this program were arranged to be carried out in the order of their importance.

French Railways a Part of the Army

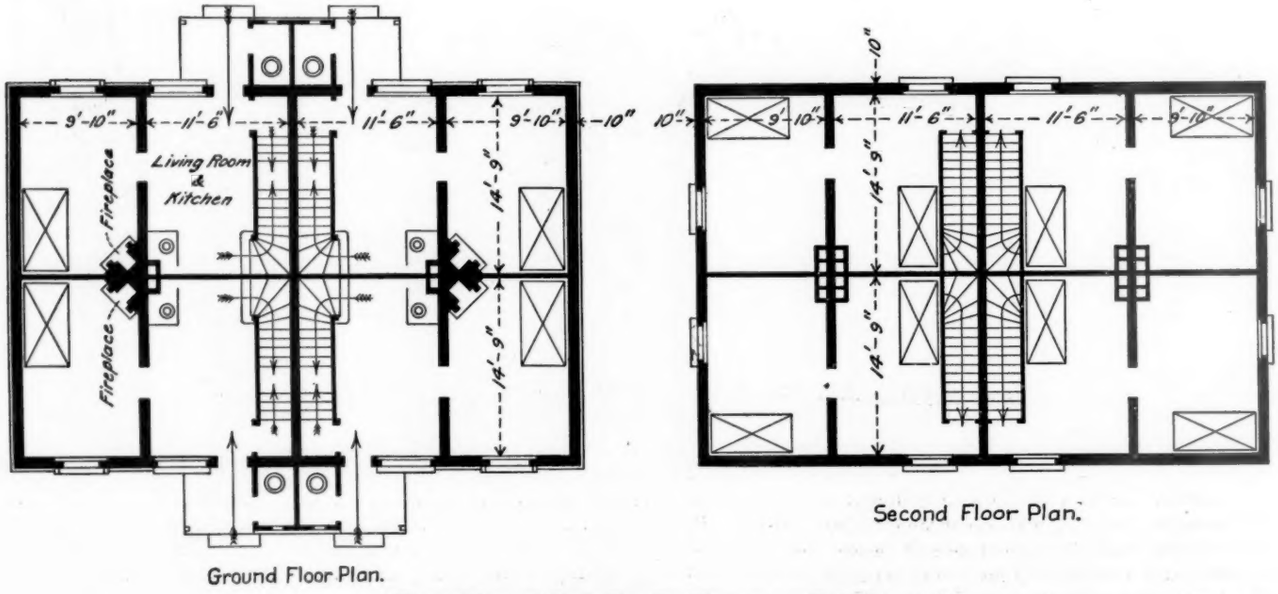
In organizing the special engineering regiments of the American army, such as those for the railway service, an attempt was made to find both officers and men with experience in the special line of work which the regiment was to do with the army. The French were able to go further. Their extensive military railway engineering organization was largely their peace time railway personnel in uniform operating as military units. Frequently both officers and men were doing substantially what they had done as civilians. The close relations existing between government departments and the railway organizations, the military control of railway operations and this personal element combined not only to facilitate the development of comprehensive plans for reconstruction, but to make the carrying out of those plans thoroughly understood and co-operated in by all.

Wage Increases Comparatively Small

During the war the pay of railway employees who were kept on a peace time basis, mostly in those parts of the country away from the fighting areas, was either not increased at all or but little compared with the increased cost of living. Those who were in active military service also suffered actual diminution of income. In the first year after the armistice the railway management was perhaps a little too slow in readjusting wages. The pay for common labor went up automatically and that of some higher officers was also raised, but the great intermediate group, the station agents, foremen, more important members of the operating and maintenance crews and the engineers and clerks of the central offices have found the recovery of a pre-war balance between income and expenses very slow. Such increases in rates of wages as occurred, either during the war or soon after the railways were freed from military control, were approximately commensurate with the actual higher cost of living and not the result of unrestrained greedy demands. The management, therefore, had the advantage of relatively lower labor costs than our American railways when returned to private ownership.



Exterior of Four-Family Houses at Tergnier



Floor Plan of Four-Family Houses at Tergnier

Labor turnover has not been as great and with the keeping up of the training of young men the French railroads are perhaps in a better position as to personnel today than the American in spite of their far greater losses due to over four years of the hardest fighting. While there have been a few serious labor disturbances on the French railways since the armistice there has been very little loss of time or waste of energy.

During this period of readjustment there have, naturally, been a few agitators, but they have been discredited by the railway workers themselves. There have been some honest

differences of opinion between the workers and the management as to hours of labor and rates of pay. There has been the real problem of adjusting wages to the actual high cost of living, and sometimes these differences have not been adjusted as quickly as the financial embarrassment of the workers made them feel that it should have been done. Some Frenchmen feel that if the management had recognized the actual needs of the mass of their most efficient and most valuable personnel, those between the classes of the common laborers and the officers, those who were most loyal and did most to keep the wheels going during the war, there would not have been any serious strikes and those same employees would now feel more interest in and affection for their work than they do now. The slowness in recognizing crying needs has sown some seeds of discontent, even in a remarkably loyal and faithful group. Both throughout the war and since the armistice, the loyalty and fine workmanlike spirit of the French railway personnel has been of the highest order.

The chief difference between the French and American labor troubles since the armistice has perhaps been in the underlying causes. In France it has been mostly a question of real economic requirements and a cry for return to the old purchasing power of income. There has been almost no question of change in relations between the employee and the management nor of trade unionism. There has also been little evidence of political propaganda of any kind. Not having accustomed themselves to an extravagant way of living there is little of the trouble which follows contraction of inflated expenditures caused by profiteering incomes.

The terrible losses in killed and permanently injured thinned the ranks of all industrial organizations. This has necessitated the breaking in of new men with consequent loss in efficiency. So many soldiers returned to civilian life thoroughly tired out and unused to normal occupations after

Living Quarters of Railway Employees Just After the War

Army Huts Utilized as Homes, Market at Lens Before Reconstruction and Temporary Settlement at Tergnier Before Permanent Houses Were Started.

four years in the trenches that there has been some decrease in the output per man. It is doubtful, however, if the breaking in of new men due to war losses over there is any more serious than the breaking in of new men due to the great migration of labor in the United States, or if the loss in productive capacity due to war fatigue is as great as ours due to readjustments following our period of wild extravagance and munition profiteering.

Efforts to Restore Pre-War Efficiency

Coincident with the study of improvement and expansion of facilities, the French railway managements have studied very carefully how to bring production per man-hour back up to pre-war practice, and what is equally important, how to simplify repair and upkeep operations and raise labor efficiency so as to enable it to exceed pre-war performance with the necessarily reduced personnel resulting from the war losses during the fewer working hours necessitated by the universal tendency to make the eight-hour day, with consequent three shift operation, an established fact.

During the first phase of the reconstruction when the devastated regions were occupied by the allied armies and bridges were being built and tracks laid by military engineers, the entire personnel lived like any other fighting soldiers. In the areas where the front line did not move very much in either direction as in the American Toul sector, there were many railway stations within ten miles of the Boche trenches and from there back to the Spanish frontier the railway personnel lived, as far as the existence of necessary houses permitted, very much as under peace time conditions and were frequently accompanied by their families. It is surprising how many French families continued practically at the front throughout the war, the women working and running the same risks of airplane bombing and long range shelling as the soldiers.

New Housing for Railway Employees

After demobilization began and the railway personnel changed from their military to their railway uniforms they naturally wanted to change to normal peace time ways of living and have their families with them. A first step in this direction was the utilization of army barracks for temporary homes in the devastated regions. An accompanying illustration shows part of such a settlement on the line of the Northern Railway between Lens and Bethune in the summer of 1919.

While the first essential work was being done by the personnel living in army huts or in temporarily repaired buildings, arrangements were perfected for creating industrial communities which would provide comfortable and permanent homes for the necessary working forces. Due to the necessity of quick action, the scarcity of skilled labor and of materials for construction, and to the fact that considerable lumber was available from army stocks, the first houses in these communities were wooden structures intended for temporary use for four or five years only, after which it is expected that they will be replaced by more permanent buildings. Practically all building done since the early part of 1920 has been of the permanent kind and almost exclusively of concrete. These houses are sometimes built of concrete blocks and sometimes of concrete moulded in place.

A typical industrial community is that at Tergnier. This development comprises 1,400 houses, of which 1,000 have been completed. This community is to serve the transfer yards and shops at Tergnier in the Aisne Valley between Soissons and St. Quentin where lines from Dunkirk, Calais and other channel ports going by way of Amiens meet lines from Belgium going by St. Quentin to Paris and to the south and east by way of Soissons and Laon. Plans of typical houses are also shown in the illustrations. Attention is called to the location of practically every house in the center of a substantial lot midway between streets and with abundant open space about it. The houses are mostly of the four-family type, each part opening in a different direction.

A little further east on the national highway from Amiens to Paris, in the department of the Somme near Montdidier, is another settlement at Roye, a map of which is shown in one of the accompanying illustrations. This is a smaller community than Tergnier, but the map shows clearly the community features and the careful planning which characterize all of these plans. These community features include a public market, a general assembly hall, or community house as we would call it, and a large athletic field with a race track, open air bowling courts and tennis courts. In the Roye settlement there is a separate section for bachelor's quarters, a large public square and quite a number of two and three-family houses as well as the four-family apartments. They are all on large lots and so situated as to give the maximum of light and air and the minimum appearance of set regularity which makes so many industrial communities drab and depressing in appearance.

The Northern Railway is building many of these industrial communities including one for the Dunkirk-Couderkerque improvement, described in the *Railway Age* of June 3 (page 1265).

They all present a very artistic appearance, the houses are spacious and the rooms have an abundance of light and air. There is a lack of bath rooms surprising from an American point of view, but the Europeans patronize the public baths a great deal more than we do. Each apartment is equipped with running water, gas and electricity. The use of gas for cooking and electricity for lighting is becoming almost universal even among families of comparatively poor people. Fireplaces which have almost disappeared from American homes are being retained, and every family will have a small garden and a cellar in which to store its supplies.

Co-operative Buying

The industrial communities being built in the devastated regions of the north will cost not less than 200,000,000 francs ($40,000,000 at normal exchange). To assist the employees in re-establishing themselves without waste of money, the company has in practically every case procured furniture, food and clothing at low prices on a very large scale and furnished all such supplies to the families moving into these settlements.

The purchase of food and clothing on a co-operative basis, either by associations of employees on a purely mutual basis or by the employer without profit is by no means a new development in French industrial life. It is being done not only because of conditions arising during the period of reconstruction, for many French industries have had service of this kind for many years. When the employees of several factories are grouped, as is sometimes done, their combined purchasing power becomes very great and they buy at lowest prices. The service rendered by such co-operatives is so universal that they are able to make regular deliveries. Such an organization in Paris, for instance, furnishes each employee with an order book, has regular collection boxes and a system for getting the orders promptly to headquarters and delivers once or twice a week to all parts of the city and suburbs. Here again we have an illustration of an effective means of combating the high cost of living.

Anyone who has seen the personnel of the French railways actually doing their reconstruction work cannot help remarking on the wonderful spirit of co-operation and determination which is being shown by all. They are all not only trying to help in the rebuilding of France by putting their railroad systems in the best possible condition in the least possible time, but they are working to re-establish a comprehensive railway system in which will be combined first class service to the public and reasonable returns with comfortable, happy living conditions for themselves and their families. It is a spirit which cannot help but win!

Ford Has Not Wrought Miracle With D., T. & I.

Traffic in Flivvers and Auto Raw Materials as Well as Increased Diversions Real Reason for Expanded Earnings

"When is Ford a manufacturer and when is he the chief executive of a public service corporation? . . . Essentially, Mr. Ford is operating the D., T. & I. primarily as an adjunct to his factories and secondly as a common carrier. . . . The spectacular increases in earnings, both in gross and in net, are not the result of Mr. Ford's ability as a railroad traffic manager, but because Mr. Ford as a shipper, has diverted all of the raw materials and finished products to and from his factories over the D., T. & I. . . . This wonderful increase in earnings, therefore, is not the result of making two blades of grass grow where one grew before. It is merely a shifting of tonnage to the D., T. & I. from other roads." These are some of the thoughts expressed in an article in the New York Evening Post of Tuesday last by William J. Cunningham, the James J. Hill Professor of Transportation at Harvard University. Professor Cunningham takes issue with those who hold the view that Henry Ford has worked a miracle with the Detroit, Toledo & Ironton and shows that Ford has secured his improved results by methods not particularly new or original.

The improvements in the earnings of the Detroit, Toledo & Ironton which Ford has made since he acquired the road a little over a year ago have attracted almost as much attention in the press as tax reform or the tariff. The opinion has been expressed on many sides that he has effected a miracle in railway operation that should serve as a lesson or a model to other railway executives. His results have served as arguments for lower rates, higher wages and for suggestions in some quarters that the railroads of the country be turned over to Ford to operate.

On the other hand, this expression of opinion has been met with assertions, of which Professor Cunningham's is one, that Henry Ford has worked no miracle, but that on the contrary he is merely making the D., T. & I. a plant facility and by putting on its rails the enormous traffic of the Ford industries, he is naturally getting different results than were secured when the road was without such traffic. So far is one writer from agreeing that Ford is a miracle man, that he says:

"Railroad men see in Mr. Ford's apparent success in transportation merely the result of his ability to obtain return tonnage on an extremely favorable basis from really great railroads and make his small line show a profit. It is even suggested that sooner or later this question will be investigated with a view to determine whether Mr. Ford has not discovered an ingenious method for evading the transportation laws regarding rebates."

There are given below abstracts of several of the articles which have been written on this subject. First is the article by Professor Cunningham which appeared in the New York Evening Post of August 23. There is also an interview with J. A. Gordon, the former president of the D., T. & I. which appeared in the Wall Street Journal of Wednesday morning.

Expressing rather the idea that Ford has effected a revolution in railway transportation is an article which appeared in the New York Times of August 14, entitled, "Ford's Revolutionary Railroading," by H. E. Hoagland, Professor of Transportation at Ohio State University. In conclusion, there is given a transcript of an article which appeared on August 27 in the Review, a journal published by the New York brokerage firm of W. J. Wollman & Company.

Ford Not a Miracle Man as Railroad Operator

W. J. Cunningham in the New York Evening Post

The public appears to be quite willing to believe the press reports which tell of the magical results achieved when the Detroit manufacturer waved his wand over his 400-mile "streak of rust." Deficits have been turned into surpluses, rates have been cut, wages have been increased.

Mr. Ford is said to have dismissed a large part of the railroad trained officials and to have turned over the operation to manufacturing, engineering, and merchandising experts who are successful mainly because they know little of orthodox railroad methods and therefore "have nothing to unlearn." Mr. Ford, then, is credited with "showing up" the railroad managers and of exposing their inefficiency. In some way not clearly explained he has pushed railroad labor leaders off the plank by paying the Ford factory wage scale, by scrapping the national agreements, and by getting eight hours' work for every eight hours' pay.

Misinterpretation of Facts

In whatever degree these things have been actually accomplished, they are noteworthy, and to Mr. Ford and his lieutenants should go the credit for that part of the achievements which are the result of a superior quality of management. Mr. Ford has made a wonderful record in his own field and undoubtedly can bring to railroad operation ideas which will increase efficiency. The achievements on the D., T. & I., however, are attributable mainly to influences wholly apart from the efficiency of management. The tendency of the writers of the press articles, who in the main are not qualified to pass judgment upon or to interpret results of railroad administration, is to credit everything to the genius of Ford and to make no allowance for the natural operation of economic laws under changed conditions. They have been more anxious to get good stories than to weigh the facts or to go behind the returns.

As a matter of fact the explanation of the extraordinary change on the D., T. & I. is extremely simple; so simple that its telling spoils the story. Before Mr. Ford bought the railroad it could not pay its charges because it could not get traffic. The traffic went to roads which were more advantageously situated and had better service. With the change in ownership came the immense traffic of the Ford Company, millions of tons per year.

Diversion of Traffic

This increase in business on the D., T. & I. changed the situation almost over night. The spectacular increases in earnings, both in gross and in net, are not the result of Mr. Ford's ability as a railroad traffic manager, but because Mr. Ford, as a shipper, has diverted all of the raw materials and finished products to and from his factories over the D., T. & I., and in addition to that he is securing for that road a large part of the unrouted traffic consigned to other than the Ford Company. He is able to do that by making traffic agreements with other roads that will bind them, in return for the favor of receiving Ford's business from the D., T. & I., to hand to the D., T. & I. all of the unrouted freight in the opposite direction.

This wonderful increase in earnings, therefore, is not the result of making two blades of grass grow where one grew before. It is merely a shifting of tonnage to the D., T. & I. from other roads. These roads, already struggling under the

handicap of reduced business because of the general depression, are that much further embarrassed. This point should be noted by those who acclaim Mr. Ford as the Moses to lead the railroads out of the wilderness. His magic would disappear if his operations were extended. If, as has been seriously suggested, the railroads should again be commandeered by the government and turned over to Mr. Ford as Director General of Railroads, the tonnage to and from his plants now bolstering up the showing of one small road could not be used to serve similar purposes elsewhere. The gain on the D., T. & I. would be offset by the losses suffered by the roads from which the shipments had been diverted.

No Magic in Results Achieved

It is unnecessary in this article to comment upon the effect of increased traffic on net earnings. Attention is called, however, to the fact that the D., T. & I. had been a road with unusually light traffic and the facilities, although below those of competitors, were adequate to take care of many additional trains. The new traffic which the Ford factories have thrown to it at the expense of other roads can easily be handled with no increase in overhead and with but relatively small increase in operating expenses.

Consequently, with such substantial increases in gross revenue the operating ratio is lowered and net income is earned instead of deficits. There is no magic about it. It is merely the working of the economic law of increasing returns. Any one of the many roads which are now only a few jumps ahead of the sheriff could pack up all of their financial troubles if presented with such increased tonnage.

Only those who have little conception of the effect of wholesale diversions of traffic will be misled by the press reports of Ford legerdemain in railroading. There is danger that the rejuvenation of the D., T. & I. may be regarded as merely the shadow of the personality of an industrial leader, and that similar leadership on all railroads would solve the whole railroad problem. No such delusion, however, is held by organized shippers.

Reason for Ford's Success

Industrial traffic managers, always on the alert for arguments which will support their efforts for lower rates, are not using Mr. Ford's achievements as a text. Their position is clearly stated in an editorial in the August 6 issue of the Traffic World, their most influential publication. After reciting the facts already dealt with in this article, the editor closes with these words: "All there is to Henry Ford's railroad success is that as a shipper in the railroad business he is able to control his own and other traffic to such an extent that his line profits at the expense of other lines."

It is curious that so little thought is given to this phase of the subject. When is Ford a manufacturer and when is he the chief executive of a public service corporation? Why is it that the public apparently approves of Mr. Ford's control of a railroad when they would strongly object to similar domination of public service by the Steel Corporation, the oil companies, the packers, or the coal mining companies? Essentially Mr. Ford is operating the D., T. & I. primarily as an adjunct to his factories and secondarily as a common carrier. In technical terms he has transformed the D., T. & I. from a railroad into a plant facility. His railroad venture is a side issue in which the interests of the factories, rather than those of public service are dominant.

An Interview with J. A. Gordon, Formerly President of the D., T. & I.

From the Wall Street Journal

An inside light upon the means by which the Detroit, Toledo & Ironton has been able greatly to increase its gross and net earnings since Henry Ford bought control of it has been obtained, says the Wall Street Journal, in its article Wednesday, from J. A. Gordon, former president of the road and its general manager under federal control. Mr. Gordon refused to take any part in the public discussion of Mr. Ford's railroading until it appeared that a serious injustice was being done to the executives of other roads and that the public was being misled. Mr. Gordon says:

"Today I read an item quoted from the New York World in which after commenting on D., T. & I. earnings for six months this remark was made: 'Perhaps the railroads need financial aid from the Government less than they need five or six Henry Fords to run them intelligently.' This article is unjust and harmful.

"It is said that Ford took four steel private cars from officials and converted them into coaches. The facts are that the D., T. & I. doesn't own a single steel passenger car; that there was but one official car—the 51—in service; that a car numbered 100 had, prior to 1918, been used by officials, but had been out of service for over three years and had been offered for sale.

That Story of Junk Salvage

"It was stated in a Ford interview given the Detroit Times that Ford gathered up enough junk along the road to pay for it. Just before Ford secured control the old board had purchased 2,200 tons of new 85-pound rail. Ford then bought 10,000 tons of new steel rail. It was the scrap released by these purchases that produced the junk. Ford did retire 1,000 freight cars of 30-ton capacity and great age, also five or six light locomotives. Practically all of this old equipment had been set aside by the federal Administration as not worth repairing; but it was the equipment Ford purchased when he purchased the road. At that its value was less than $150,000.

"One of the inferences to be drawn is that because Ford did some superior job of repairing an engine, he had been able to cut the time between Detroit and Bainbridge some two hours. Now the D., T. & I. passenger engines were mighty old and poor, but they didn't limit the speed. Track conditions imposed speed limits, for up to the fall of 1920 most of the 220 miles between Detroit and Springfield were laid in 60-pound rail which had been in service over 25 years and was fearfully bent and twisted.

Where the Earnings Come From

"Coming now to the big thing, namely, that Ford has made a financial success of the road. His formula is not a secret one; it has been known to all railroad men for ages. It prescribes a volume of traffic up to a road's carrying capacity, especially high class carload traffic. Ford has that traffic en route to and from his own plants; he doesn't have to solicit it. While negotiations for the road were still in progress, I was asked by a Ford representative what I thought could be done with it. My reply was that much money would have to be spent to improve it physically and provide it with appropriate equipment so that patrons could rely upon its service; that it was valuable to Detroit as the only road coming in from the South which did not operate through the frequently congested Toledo terminals; that I was convinced it could be converted into a money maker even by other hands, but that so far as the Fords were concerned, they ran no risk at all, since they already had traffic enough of their own to make the road profitable.

"The Ford performance stands out all the more prominently right now because he has been able to double and treble the earnings by means of his own traffic at a time when all other lines are suffering a great diminution of traffic. But imagine, if you please, other railroads of the country enjoying such an increase in high class carload traffic! They would immediately wax so fat that a great reduction in freight rates would quickly ensue. The financial status of

all roads would be revolutionized just as Ford has revolutionized the status of the D., T. & I.

Federal Control Benefits

"There were some incidentals besides which helped set the stage, as it were, for Ford's successful debut. Just previous to his taking over the road, 15 new engines and 300 new box cars had been purchased from the Railroad Administration. Something over half a million dollars had been expended during federal control on such additions and betterments as heavy rail, a new engine house and machine shop at Napoleon terminal, a coaling station at Jackson terminal, a large number of new shop tools, cinder pits at all terminals (previously there were none), a new 120-ton wrecking outfit, additional yard and passing track, an American ditcher, a Jordan spreader, a clamshell, snowplow, etc. These expenditures are now bearing fruit.

"Then the D., T. & I. was weak and had never been treated fairly by many of its connections in the matter of equitable division of through rates. Ford says: 'Come across with more favorable divisions or no Ford traffic for you,' and he secures the divisions.

"And so Henry Ford is making a profit out of the D., T. & I., and his possession of the traffic necessary to this result enables him to put before the I. C. C. what, at first glance to the unthinking, looks like a most plausible pretext for a reduction of freight rates. Obviously Ford has many millions more to gain out of reduced freight rates than out of any possible profit on the D., T. & I. Fortunately the Transportation Act deals with railroads as a whole or by groups, and it isn't at all likely that the I. C. C. will authorize a reduction at this time, because that body of experts must realize that D., T. & I. profit is at the expense of other roads from which the Ford Motor Company traffic was withdrawn.

"It would be a spectacle for the gods to see Ford struggling with the D., T. & I. if he had no traffic of his own to route over it!

Scrapping the Older Employees

"It is self-evident that the same ownership control of vast traffic, which has turned the road into a money-maker, also puts Ford in a position to name a wage scale which other roads might find intolerable, and I wonder, therefore, if the Labor Board has taken cognizance of this, as the board should do under terms of the Transportation Act. Personally I think highly of the general policy of paying a liberal rate per day and eliminating the arbitrary and unfair conditions which have grown up in the railroad world. These conditions run into vast sums of money which might better be added, in part or in whole, to the daily rates. Most of the controversies between railroad employer and employee arise out of divergent constructions of the meaning of the working conditions prescribed in wage schedules. But I should hate to see railroads adopt the Ford policy of discarding without pension employees who have grown old and who have worn out their lives in faithful service merely because it was possible to obtain younger and huskier men who could do a bigger day's work. This may be efficiency, but Lord save the industrial world from such efficiency!

Ford's Revolutionary Railroading

H. E. Hoagland in the New York Times

A look at the map indicates some of the possibilities of the D., T. & I. in the hands of those who can develop them. At the southern end it connects with the Chesapeake & Ohio and through the Big Sandy division of the latter with the Carolina, Clinchfield & Ohio. This gives a fairly direct route from Detroit to the Southeast and affords connections with the coal fields of West Virginia and Kentucky.

The D., T. & I. crosses every trunk line from St. Louis and Chicago to the East. This practically makes the Ford railroad one vast terminal through which coal and the steel products of the Pittsburgh district may move northward in exchange for the profitable traffic in the products of Michigan's and northern Ohio's factories, southward, eastward and westward bound. In a measure, at least, what has heretofore been considered one of the road's greatest sources of weakness—the absence of cities along its route—may, under the Ford control, be a source of great strength. The Toledo "bottle neck," for example, has been one of the first points of congested traffic whenever freight movements became heavy. The D., T. & I. main line avoids this congested area and makes connection with other roads at points less susceptible to concentration of cars.

For less than $5,000,000 Mr. Ford and son bought the right to realize the possibilities of the above plan through the acquisition of title to the skeleton road called the Detroit, Toledo & Ironton. Already the needed rehabilitation is taking place. To this skeleton is being added the flesh of railroad construction in the form of more and better ballast, the substitution of 85 pound for 56 pound rails, the strengthening of bridges, the improvements of terminals, the reduction of grades, the improvements of shop facilities, and the construction of new mileage to give the road additional strategic connections.

Henry Ford became president of the D., T. & I. in March, 1921. In the short time that has elapsed since he assumed direct control, the changes effected have already become a favorite topic of discussion and conjecture in railroad circles.

Increased Wages, Decreased Rates

At a time when wage decreases are the order of the day throughout all industry, the D., T. & I. has announced that the minimum wage of $6 per day for eight hours—now famous in the plants of the Ford Motor Company—will be adhered to for railroad employees. This means a general increase for many classes of railroad labor.

The D., T. & I. has filed a new rate schedule, effective Aug. 20, 1921, calling for a flat decrease of 20 per cent on all rates local to its lines.

Meantime, the road is operating with an effectiveness unprecedented for this company and seldom approached by any company. The operating ratio for June, 1921—the latest figures available—was 53; that is, for every dollar of revenue collected the cost of peration and maintenance was only 53 cents. The corresponding ratio for June, 1920, was 117 and for June, 1919, it was 118.

How are these results being accomplished? The answer is really very simple.

One of Mr. Ford's first acts as president of the D., T. & I. was the dismissal of all but one of the officials and higher-up employees of the old régime. The dismissal was tempered by a bonus of two months' pay. Then he proceeded to turn over the operation of the road to men in the Ford Motor Company's organization. These men are not railroad men in the commonly accepted meaning of that term. And yet, to Mr. Ford, they are better than railroad men. Some of them possess two very decided advantages over the man who knows by long experience the routine work of railroad operation. In the first place, they have no such experience to "unlearn" in their efforts to find new methods; and second, for years they have been studying the weaknesses of existing railroad organization. They have been fortifying themselves against the mistakes of others and are profiting by this preparation. These are the men, imbued with the Ford spirit, who are revolutionizing railroad operation on the D., T. & I. The word revolutionizing has been used advisedly because nothing short of a complete upheaval in the operating plans of a road such as this could have produced in so short a time the results effected by its new organization.

It is in his relations to the employees that Mr. Ford has made the most radical changes in his railroad operation. He believes that a work day longer than eight hours is fundamentally wrong and that a form of industrial organization which supports it has no right to exist. This doctrine is particularly heretical in the railroad industry, where maximum days have been limited to sixteen hours only by the force of law and where much longer work periods were formerly common. In 1916 the railroad brotherhoods received an eight-hour basis of pay in the passage of the Adamson act. Mr. Ford believes that their actual working time should be limited to eight hours a day. As rapidly as possible he is reorganizing the operation of the D., T. & I. so that all employees, even the operators of trains, will have an eight-hour day. At present, where emergency work or difficulties in adjusting the running time of trains necessitate for any particular employee a day longer than eight hours, compensating time off is granted as soon as possible. No employee is permitted to work more than 208 hours a month.

Full Eight Hours of Work

However, Mr. Ford's day is very materially different from the workday of considerable numbers of railroad employees. When he thinks of eight hours' work he has in mind not only the first two words of this phrase, but also the last. He believes that if the D., T. & I. pays for eight hours of the employee's time it is entitled to the application by the employee of the entire eight hours to the interests of the road. Two things are being done to make this possible—first, the operation of the road is being so organized that a man can do his stint in eight hours and that normally it will take him eight hours to do it; and, second, time-worn title distinctions are being discarded. An employee of the D., T. & I. is expected to work for the interests of the D., T. & I. If ordinarily he is a machinist, but the job at hand most pressing is window washing, he is expected to wash windows.

A corollary to the eight-hour day is the regular rest period, especially the American observance of Sunday. Mr. Ford believes that in this respect railroad operation can be conducted, for the most part, as factory operation. Already he has eliminated all shop, maintenance and office work on Sunday and has cut train operation to the bare necessity of movement of live stock and perishables.

Since the eight-hour day and the observance of Sunday as a rest period afford time for normal family life, Mr. Ford believes that all employees should receive a wage which will make possible the American conception of normal living. He has, therefore, extended to the operation of the D., T. & I. the $6 a day minimum wage made famous in its application to the employees of the Ford Motor Company. This, of course, is only a minimum, gradations above this varying with duties and responsibilities.

Out of it all Mr. Ford has cut his force of railroad employees from 2,700 to 1,650 in the face of more traffic than the road has ever handled before. Nor are the economies in wages the only ones already effected. Damage claims have been materially reduced because freight is being handled more expeditiously and more carefully. This is shown also by the fact that the usual charge of about $5,000 a month for clearing wreckage was reduced to $2,200 in June, 1921. Stationery and printing bills have been more than cut in two. Fuel bills for yard locomotives show a decrease of one-third and for transportation locomotives over one-fifth from June, 1920, to June, 1921, in spite of the very great increase in ton-miles hauled. Even allowing for a decrease in unit costs of fuel, a satisfactory economy remains to be accounted for by more effective use of fuel.

For June, 1921, freight revenues amounted to $686,355, an increase of $319,079, or 87 per cent over June, 1920. Expenses for June, 1921, amounted to $376,383, a decrease of $102,543, or 21 per cent. In June, 1920, the deficit, after paying taxes and rents amounted to $135,932; for June, 1921, the corresponding figure was a net income of $261,259. Meantime the cost of carrying one ton of freight one mile has been reduced one-third.

Has Ford Discovered an Ingenious Method of Rebating?

From W. J. Wollman & Co.'s Review

Practical railroad men have not been as ready as a credulous public to believe that Henry Ford has worked another miracle in the operation of the Detroit, Toledo & Ironton which he acquired about a year ago. Whatever may be conceded about Mr. Ford's success in the automobile business, even in extricating himself from his financial difficulties of last year, railroad experts insist that the stories of his achievement with his new railroad, if taken at their face value, read like the discovery of perpetual motion, or a device to make water run up hill.

For many years the Ford plants in and about Detroit have been served by an important alliance which includes the New York Central, Grand Trunk, Pere Marquette and Wabash, besides the Detroit, Toledo & Ironton. The business was distributed among these carriers with service satisfactory to the shipper. The Detroit, Toledo & Ironton was receiving the least of this tonnage, as it reached no important points. This latter road had been receiving cut divisions of the through rates on business interchanged with its connections, but this failed to yield sufficient revenue to sustain it. The methods of shipping raw materials to, and finished products from the Ford plant normally yield perhaps upward of 500 cars of freight per day.

Mr. Ford bought the D., T. & I. through a purchase of stock and adjustment mortgage bonds of that company. The road had outstanding $7,628,000 of adjustment bonds, $5,989,998 preferred and $6,500,000 common stock in addition to $2,254,000 of underlying bonds. Mr. Ford is said to have paid $600 per $1,000 adjustment bond, $5 per share for preferred and $1 per share for common stock. If Mr. Ford had acquired all of the adjustment bonds and stock, his investment would have been $7,637,000 or $17,300 per mile against an original capitalization of about $50,700 per mile for the 411 miles of railroad.

Meeting Ford's Demands

With the acquisition of the railroad, Mr. Ford concentrated the larger part of the tonnage movement on his new property. He exacted from connecting carriers percentages of division which the other railroads recognized as an excessive burden, but which was yielded by certain lines because the tonnage could be diverted elsewhere. The tariff on this freight has been estimated at $22,000,000 a year.

Rates cannot be reduced by individual roads without disturbing the entire rate structure served by them but the increased carrier divisions which Mr. Ford has exacted have left the rates nominally undisturbed. However, these increased carrier divisions, which now aggregate over $500,000 per month, are paid to a road which under normal traffic conditions would not receive them. The result is that the Detroit, Toledo & Ironton is receiving a revenue of about 100 per cent above what it would obtain under ordinary conditions for the service it performs, and out of all proportion to that received by its connecting carriers for similar service or similar hauling.

Railroad men see in Mr. Ford's apparent success in transportation merely the result of his ability to obtain return tonnage on an exceptionally favorable basis from really great railroads and make his small line show a profit. It is even suggested that sooner or later this question will be investigated with a view to determine whether or not Mr. Ford has not discovered an ingenious method for evading the transportation laws prohibiting rebates.

Regulating Brake Cylinder Piston Travel

A New Slack Adjuster for Freight and Passenger Cars Gives Direct Control of Shoe Clearance

THE DESIRABILITY of an automatic device which would mechanically compensate for the variations in the brake cylinder piston travel caused by the wear of the brake shoes was realized even in the early stages of the development of the air brake. Many devices have been designed to meet the demands and a number of them have come into more or less extended use. At the present time a considerable portion of the passenger cars in the country are equipped with automatic slack adjusters, but such devices have never been applied to any great extent to freight equipment, despite the evident safety and economy which would result from a uniform and automatically adjusted brake shoe clearance.

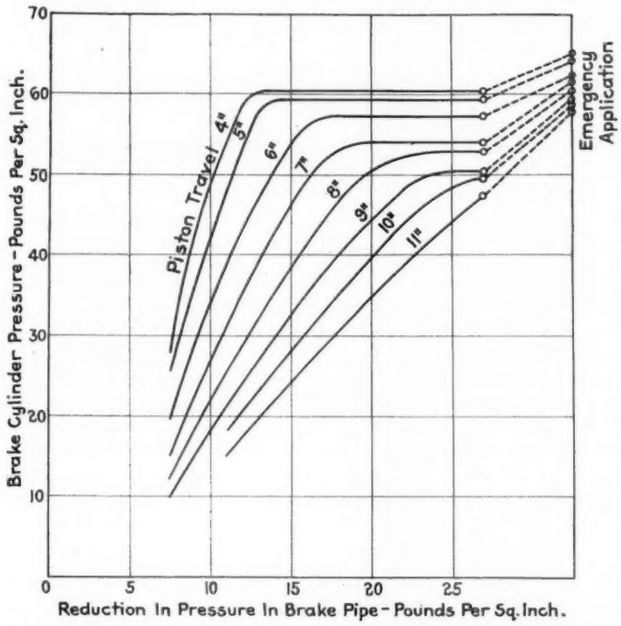


Fig. 1—Effect of Piston Travel on Brake Cylinder Pressure

Brake Cylinder Piston Travel

In order to secure the desired flexibility of control in service braking, the brake cylinder piston travel should be kept at as near 8 in. as possible. With hand adjustment, however, the piston travel is apt to be anywhere from 4 in. to 10 in. and in case of neglect it may even increase to 12 in. and the brake rendered inoperative due to the piston striking the cylinder head. Differences in brake cylinder piston travel mean unequal pressures and consequently unequal force. This is one cause of shocks, damage to freight and broken couplings. The effect of variations in brake cylinder piston travel on the cylinder pressure is evident from the curves shown in Fig. 1, which were plotted from data obtained from tests made on the Swiss Federal Railways. For example, the curves show that a brake pipe reduction which will give 60 lb. cylinder pressure when the piston travel is 4 in. will give only 23 lb. in a cylinder having a 10 in. piston travel. While the results shown differ slightly from those obtained in this country, the general character of the curves does not differ greatly.

Piston travel may be divided into two portions: first, that necessary to bring the shoes into contact with the wheels and, second, that which takes place afterwards. In taking up the slack and bringing the shoe against the wheel a small portion of the piston travel is required to care for the looseness of the pins in the holes, but most of it is due to the clearance between the shoes and the wheels, being a direct product of the shoe clearance and the total leverage. If the brake shoes are suspended from a point above the truck springs, as is common on passenger equipment, there will be a somewhat greater shoe clearance on loaded than on empty cars, but as the added weight in a loaded passenger coach is comparatively small in relation to the empty weight, the increase in shoe clearance will be slight. On freight cars the shoes are ordinarily hung directly from the truck frame so that the loading does not affect the shoe clearance. The second portion of the piston travel is often referred to as "false piston travel" and is due mainly to the stretch in the rods, the bending of levers, the deflection of brake beams and the drawing down of the shoes under the wheels. This portion of the travel is closely related to the difference which is obtained in standing and in running tests. It is of prime importance that it should be kept as low as possible. The factors controlling its extent are all related to foundation brake rigging design and are therefore matters to be handled by the air brake engineer and the designer and cannot be taken care of by any slack adjuster. In fact, they simply greatly complicate matters relating to the operation of the slack adjuster as ordinarily applied. The total leverage of the brake rigging is controlled by the maximum amount of shoe clearance which is liable to occur in practice and by the amount of false piston travel. An adjuster which will positively maintain a minimum shoe clearance will so fix the most important variable that a relatively large total leverage can be used.

A New Principle in Slack Adjusters

A slack adjuster constructed along new lines has been developed recently by a Swedish inventor, A. R. Durson. This adjuster, which is applicable to both freight and passenger equipment and has been in service for several years on railroads in Sweden, Norway, Holland, Denmark and Switzerland is now being introduced in this country. Instead of attempting to control the slack by limiting the brake cylinder piston travel to a predetermined amount, this adjuster is designed to control directly the clearance between the shoes and the wheels and to keep it at a fixed amount regardless of shoe wear. All adjustments are made during that portion of the piston travel which takes place before the brake shoes are in contact with the wheels and the brake rigging is subject to stresses, consequently the operation is not affected by false piston travel or by any difference between service and emergency piston travel. This is rendered possible by the intro-

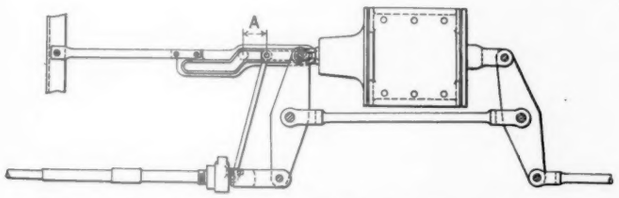


Fig. 2—Slack Adjuster Applied to a Passenger Car

duction of an auxiliary yielding device which prevents the adjuster taking up any further slack from the moment tension arises in the brake rigging.

Operation of Adjuster

A typical installation of the Durson slack adjuster as applied to a passenger car is shown in Fig. 2. Attached to the piston rod is a roller which travels outward in a slotted cam as the brake is applied. Distance plates on either side of the cam transfer this motion to a second roller which is located at the distance *A* from the point where the second roller starts to change its direction. This distance *A* corresponds to the piston travel required to bring the shoes into contact with the wheels. It will vary with the total leverage of the brake rigging, but is, however, a constant for each type of car. As the second roller changes its direction, this motion is transmitted by suitable levers to the arm of the slack adjuster. Should there be any additional clearance due to brake shoe wear the adjuster extends itself to compensate for this wear until taken up. When that point is reached further motion in the arm of the adjuster is taken up by a yielding friction mechanism.

While Fig. 2 shows the Durson slack adjuster introduced into one of the top pull rods, it may be a part of the cylinder lever rod or of the bottom rods of the truck as conditions demand. It is designed for use either as a tension or as a compression member.

The construction details of the slack adjuster are shown in Fig. 3. A shaft *5* with a suitable collar *3* adapted for either tension or compression revolves in the jaw *1*. To the opposite end of the shaft, extended to its proper length by a section of heavy pipe *4*, is attached a threaded nut *8*. Engaging this nut is a length of shafting *9* which is threaded at one end and which is attached to a jaw at the other end in order to become an integral part of the brake rigging. Welded to the shaft *5* is a collar *18*. On either side of the collar *18* are two friction discs *16* which revolve freely about the shaft *5*. A circular ratchet *17* revolves about the collar *18* and between the friction discs *16*. Three bolts *19* are fitted in holes drilled through the friction discs *16* and the collar *18* and transmit their motion to the latter. Three springs *20* are held in position by lock nuts and maintain a certain friction between the friction discs *16* and the circular ratchet *17*. Motion of the ratchet *17* is therefore transmitted through the

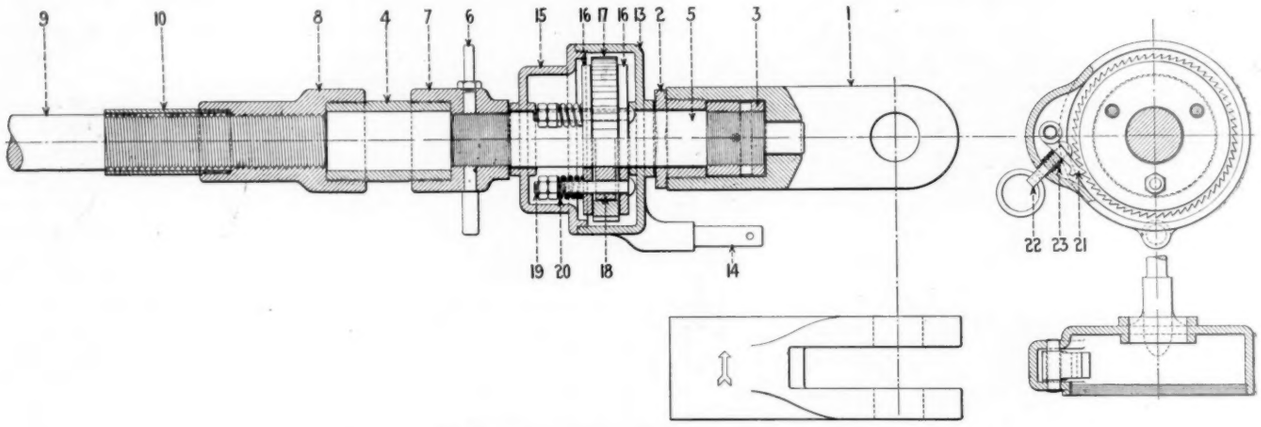


Fig. 3—Details of Durson Slack Adjuster Mechanism

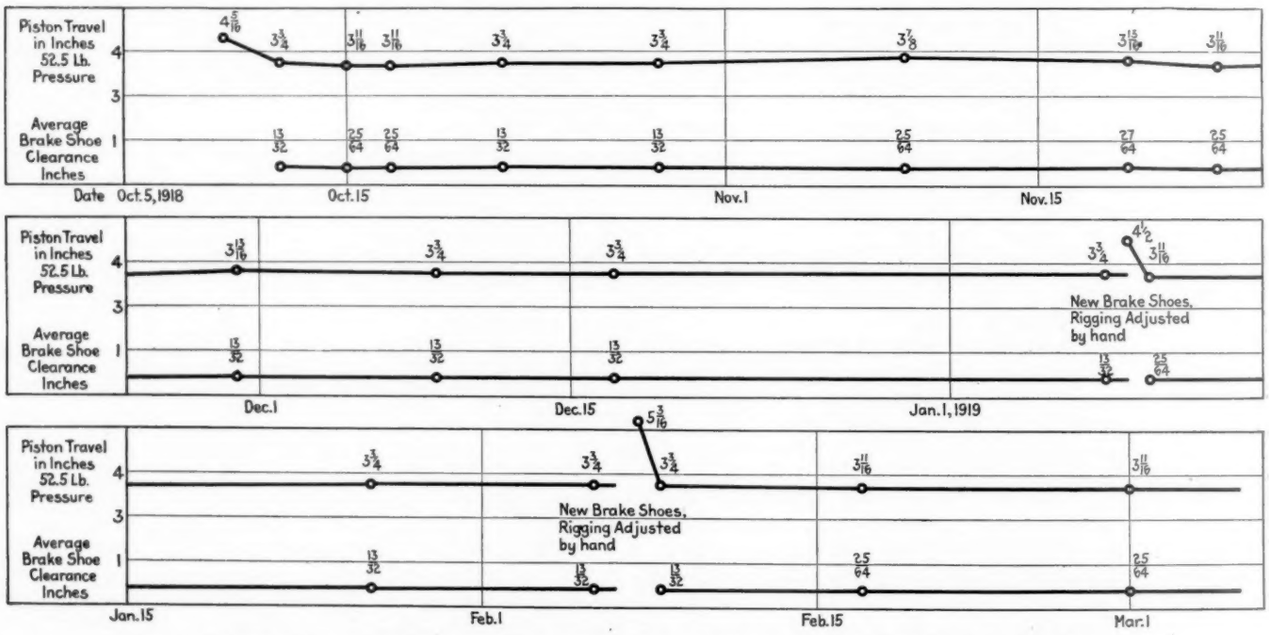


Fig. 4—Diagram Showing Uniform Shoe Clearance and Piston Travel During Five Months' Test

friction discs *16* to the collar *18* and shaft *5* and the revolution of the shaft *5* increases the total length of the slack adjuster. The bracket arm *14* is attached to the housing *13*. To this housing is also attached the pawl *21* held against the circular ratchet *17* by the spring *23*. Motion of the bracket arm *14* in a clockwise direction is transferred through the housing *13*, the pawl *21* to the circular ratchet *17* and thence as noted to the shaft *5*.

When the transverse motion of the roller, connected by levers to the bracket arm *14* takes place the slack adjuster is lengthened until tension arises in the brake rigging. At this point the friction moment between the nut *8* and the shaft *9* is greater than that between the friction discs *16* and the circular ratchet and further movement is taken up by the sliding of the circular ratchet between these friction discs.

When new brake shoes are applied, the slack adjuster can be reset by releasing the pawl *21* by means of the ring-bolt *22* and revolving the nut *8* by the extended pin *8* in the coupling-nut *7*.

It should be noted that all threads are protected by grease-filled housings which prevent any lack of functioning through the action of snow, ice or mud. The tension between the friction discs and the ratchet is fixed at the time of the assembly of the slack adjuster and need never be changed.

Results of European Tests

As has been stated, Durson slack adjusters have been in service for some time in a number of European countries where their performance is said to have been highly successful, not only from the standpoint of regulation of the brake shoe clearance, but also from the standpoint of maintenance. They have been extensively used on the northernmost railroad in the world, the line carrying ore from Kiruna to Narvik in northern Norway. This line is entirely within the Arctic Circle and although conditions are unusually severe, the adjusters have proven satisfactory in every respect.

In tests made on a number of railroads some valuable data have been obtained. In this connection it will be interesting to note the records on the Swiss Federal Railway as given in Fig. 4. This diagram shows the brake shoe clearance and piston travel during the test period from October 5, 1918, to March 1, 1919. The only breaks in the curve occurred when shoes were renewed and, as will be noted, the clearance was quickly adjusted each time. The piston travel was less than that used in American practice, but the curves show the uniformity in adjustment during a period of five months.

Some of the advantages claimed for the Durson slack adjuster are the following:

Brake shoe clearance kept constant at all times. As a consequence, the piston travel will be maintained within as close limits as the design of the foundation brake rigging will admit.

Hand adjustment eliminated, except when new shoes are applied and inspection costs lowered.

Practically uniform and simultaneous braking power on all cars and consequently a reduction in shocks with a saving in damage to equipment and lading.

No matter how the brakes are applied, the slack cannot be so taken up that the shoes will drag and increase the train resistance.

As the shoe clearance is positive it can be fixed at an amount less than would otherwise be possible. Consequently the maximum total leverage can be employed consistent with the design of the brake rigging and the amount of false piston travel. A higher total leverage than would be practical if slack adjusters were not applied can often be employed with safety.

A saving in air consumption with a resultant increase in safety and a postponement of the time when recharging becomes necessary.

The Durson slack adjuster which is built for the European market by Aktiebolaget Bromsregulator, Stockholm, Sweden, is being introduced and will be handled in this country by the firm of Hamilton & Hansell, Inc., Park Row Building, New York.

Leavenworth & Topeka Patrons Vote on Tax Levy

RESIDENTS of parts of two counties in Kansas are going to the polls to determine whether passenger and freight service is to continue on the Leavenworth & Topeka Railroad. This is in accordance with the new Kansas state law which permits benefit districts to vote on tax levies at special elections to make railroad service possible. Advance returns, from the ballot, point to the continued operation of the road.

The Leavenworth & Topeka has been operating 44.72 miles of line between Leavenworth and Meriden across the counties of Leavenworth and Jefferson in an east and west direction. The road serves the town of Oskaloosa, the county seat of Jefferson county, and therefore the vote for the tax in this district has been most favorable.

The history of the company since its incorporation has been fraught with financial difficulties. It was incorporated in May, 1918, after the road had been purchased at a receiver's sale from the Leavenworth & Topeka Railway Company. The latter was the successor to the Leavenworth, Topeka & Southwestern, which was incorporated in December, 1899, and was thrown into receivership in April, 1916, by an application of the Union Pacific in the U. S. District Court at Topeka, Kan. At that time W. A. Austin of Leavenworth, Kan., was appointed receiver. In October, 1917, the road was sold to interests headed by F. L. Wells of Chicago, who was elected president, and A. J. Isherwood, secretary and treasurer. An executive committee at that time was formed to plan for the permanent operation of the road, but under the terms of the sale the new owners were not to take over the operation of the road until Judge John C. Pollock, of the Federal Court, ended the receivership. In June, 1918, W. A. Austin, the receiver, filed his final report and was discharged and Charles J. Conlon, Atchison, Kan., was appointed receiver to close up the affairs of the Leavenworth & Topeka Railway Company. Under the terms of the sale to the Wells interests, the purchasing company undertook to operate and maintain the road continuously, furnishing adequate service, and upon its failure to do so the court was again to take action and resell the road, paying to the owners of the Leavenworth & Topeka Railway the difference between $80,000 which was the upset price and the amount which it had been sold for at that time as junk, which was ascertained to be $160,000.

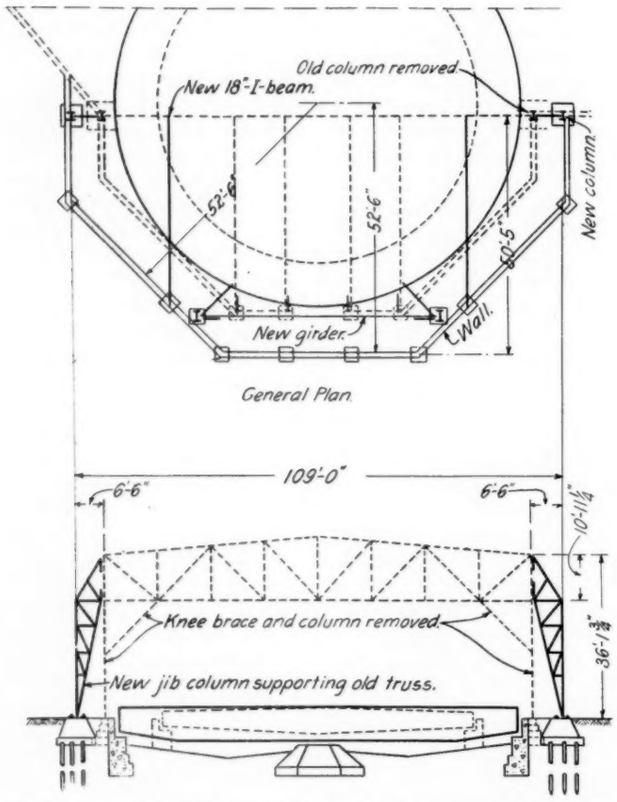
The officers of the road, in order that the operation be assured, have now found it necessary to go to the public. Citizens of the territory served by the road confronted with the abandonment of the property, the possible difficulty of the disposition and marketing of their products, the bringing in of commodities necessary to existence, have gone to the new state law devised for just such emergencies. The advance returns on the ballot now being taken show that the voters in the benefit district of Jefferson county have voted 780 to 231 for a tax levy of 2.5 mills to help finance the road. The entire levy will raise approximately $32,500 and, though the road is of less direct benefit to the citizens in Leavenworth county, confidence is expressed that this amount will be raised and the road will continue in service.

THE NOMINATION of Frederick I. Cox, of New Jersey, to be a member of the Interstate Commerce Commission, was confirmed by the Senate on August 23.

Cover to Keep Out Snow Complicates Turntable Replacement

A ROUNDHOUSE located in regions subjected to extremely heavy snow-falls such as are encountered in portions of Canada and the Pacific Northwest presents an added problem in the sheltering of the turntable and its pit from complete burial under the heavy snow blanket. In other words where snow conditions are unusually severe, it is found necessary to roof over the turntable and the entire space between the table and the inner wall of the roundhouse. Owing to the fact that no supporting columns can be placed in the turntable pit or between the pit and the roundhouse, the problem of designing the supporting frame for a roof of this kind is by no means simple. By the same token a project to renew a turntable with one of greater length introduces difficulties not experienced where there is no roof to interfere.

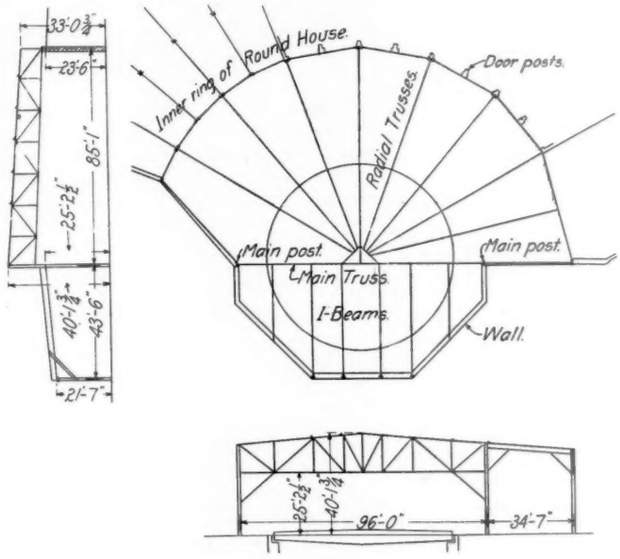
A problem of this kind was imposed on the engineers of the Canadian Pacific when it became necessary last year to replace the 70-ft. turntable of the enginehouse at White River, Ont., on the Lake Superior division, with a 90-ft. turntable. This is a 13-stall roundhouse and, therefore,



Framing of the Shelter as Revised to Accommodate a 90-ft. Table

occupies less than half the circle so that it was readily possible to design the roof framework with a main or key roof truss 96 ft. long, standing directly over the center of the pit with columns at each end that were well in the clear of the turntable and of the tracks. This main truss served as the support for radial roof trusses extending from alternate door posts of the roundhouse and also for I-beams spanning between posts in the wall, closing in the side of the turntable pit away from the roundhouse.

To replace the 70-ft. table by a 90-ft. table made it necessary to move back the outer wall of the shelter a distance of 6 ft. 6 in. on the five sides of the half octogon enclosing the outer side of the turntable pit. This, of course, involved the moving of all of the interfering columns supporting the roof frame, including the two main columns under the main truss. In other words the roof frame had the "props knocked out from under it." To provide a new main supporting truss 13 ft. longer than the old one would have been expensive in structural steel and entailed an expensive and troublesome erection problem. Lengthening of the existing truss was not desirable because the 13 ft. additional span length would have resulting in over-stressing the main members of the truss. This problem was solved in an ingenious manner. Two inclined struts or jib columns were erected on new concrete pedestals set 6 ft. 6 in. from the loca-



Framing for the Turntable Roof as Originally Constructed for the 70-ft. Table

tions of the old ones and rigidly connected to the old truss at each end to form a stiff u-frame. Analysis of this construction indicated that it provided for the disposal of the truss reaction at points 6 ft. 6 in. beyond the ends of the truss with no appreciable increase in the stresses. The sketches show how this was accomplished with the minimum difficulty since the arrangement was such that the old columns could be left in place supporting the truss until the new jib columns were erected and riveted connections made, after which the old columns were cut out.

A minor problem was introduced in providing supports for four of the old beams carrying the roof over the outer side of the turntable pit. To avoid the purchase of new beams of greater length and to avoid throwing any more load on the main trusses as would be the case if the span of these beams were increased to reach the new outer wall, an additional girder was introduced in the position of the old wall to take the ends of these four beams. This girder was made long enough so that supporting columns under each end were well clear of the turntable.

We are indebted for the above information to J. M. R. Fairbairn, chief engineer of the Canadian Pacific, Montreal, Que.; P. B. Motley, engineer of bridges, was responsible for design.

FREE COFFEE, before breakfast, is the latest innovation in Baltimore & Ohio dining cars, and, according to the assistant to the senior vice-president, the novelty seems to fill a long-felt need. The practice has been introduced on a few of the through trains and it is the expectation that it will be extended to others.

Many Roads Considering the Use of Heavier Rail

Increased Traffic, Heavier Wheel Loads and Prevalence of Failure Focus Attention on this Tendency

ALTHOUGH RAILS weighing 105 lb. per yard were the heaviest used to any extent in steam railway service less than ten years ago, at least seven roads are now laying rail weighing 130 lb. or more per yd., some of them this season for the first time. While nearly all the others limit their purchases to sections weighing not more than 100 lb. per yd., and several important western roads still adhere to a maximum of 90 lb., a number of them are now considering the advisability of adopting heavier sections. Opinions regarding the advantage which will accrue from the use of heavier rails are as diversified as the practices, but, considering the complexity of the conditions influencing the service to be obtained from rail, this is not at all surprising.

Because of the seeming lack of uniformity in practice and opinion, a questionnaire was sent to the chief engineers of a number of the principal American railways, requesting them to outline the practices on their roads with respect to rail renewals and to point to any possible tendency toward the use of heavier sections. The questionnaire was as follows:

Questionnaire on the Adoption of Heavier Rail Sections

1. What weight and section of rail are yon now laying on your main line?
2. How long have you been using this weight?
3. Are you contemplating the use of any heavier sections?
4. What effect or benefits have you observed or do you estimate will follow a change to heavier rail on a given line?
   (a) As to reduced cost of maintaining line and surface?
   (b) As to possible increase in the life of ties or other portions of the track structure?
   (c) As to increased economy in rail maintenance or in other words, an increase in the life of a rail sufficient to pay for the extra cost due to the use of the larger sections?
   (d) As to reductions in rail failure?
   (e) Any other benefits?
5. Based on such observations have you developed any relationship between traffic and weight of rail which serves as a guide in determining the weight of rail to use?

Replies were received from 24 railroads so distributed geographically as to give a fair representation of the conditions the country over, except that perhaps a larger proportion of the eastern roads are represented.

SUMMARY OF TENDENCIES AS TO WEIGHT OF RAIL

	Road	Current sections	Year introduced	Heavier section contemplated?
1	A. T. & S. F.	90-lb.	1909	Considered
2	B. & O.	100-lb.	1913	{ 130-lb. 1921
		130-lb. RE	1921	{ 12,000 tons
3	B. & L. E.	130-lb. PS	1917	No
4	B. & A.	105-lb. Dudley	1913	No
5	C. & O.	130-lb.	1916	No
6	C. & N. W.	100-lb. NW	1909	No
		90-lb. NW		
7	C. B. & Q.	100-lb. ARA-A	1908	
		90-lb. ARA-A	1911	No
8	C. R. I. & P.	100-lb. ARA-A	1911	
		90-lb. ARA-A	1912	No
9	C. C. C. & St. L.	105-lb. Dudley	1920	
		formerly 90-lb.		No
10	D. L. & W.	105-lb.	1914	No
11	Erie	100-lb. ARA-A	1909	No
12	I. C.	90-lb. ARA-A	1909	Yes
13	L. V.	136-lb. LV	1915	No
14	L. & N.	90-lb. ARA-B	1912	Considered
15	M. C.	105-lb. Dudley	1916	No
16	N. Y. C. East	105-lb. Dudley	1913	Discussed
17	N. Y. N. H. & H.	107-lb.	1915	Considered
18	N. & W.	130-lb. PS	1918	{ 130-lb. all
		100-lb. ARA-B	1911	{ heavy traffic
19	N. P.	90-lb. ARA-B	1909	Yes—later
20	Penna. System	130-lb. PS	1916	Studies made
		100-lb. PS		
21	P. & R.	100-lb.	1911 (about) some 130-lb.	Yes
22	P. & L. E.	100-lb. ARA-B	1909	Yes
23	U. P.	100-lb. RE	1917	No
24	West Md.	90-lb. ASCE	1905	No

The present practice of these 24 railroads as regards the sections of rails now being purchased or considered for future use may be summarized as follows:

Five buy 90-lb. rail exclusively but are considering the use of heavier sections.
Three buy both 90-lb. rail and 100-lb. and are *not* considering heavier sections.
Three buy 100-lb. rail exclusively and one of these is considering heavier sections.
Four buy 100-lb. rail and also some heavier sections (one—115-lb., three—130-lb.)
Five buy 105-lb. rail and only one is considering heavier sections.
One buys 107-lb. rail and is considering heavier sections.
One buys 115-lb. rail in limited quantities.
Two buy 130-lb. rail exclusively.
Three buy 130-lb. rail and also some other weights.
One buys 136-lb. rail exclusively (one road not covered by the questionnaire uses some rail weighing 135 lb. per yd.).

This summary discloses a wide variety of practices. One thing is quite clear, however, that all of the roads now using 90-lb. rail as the maximum, have under consideration the use of some heavier sections, and of those using 100-lb. rail at least 50 per cent are interested in still heavier sections, while of those using 105-lb. rail only one is considering a heavier section. The use of rails weighing more than 100 or 105-lb. per yd. is limited to lines east of Chicago and there seems to be a rather definite feeling that the use of these heavy sections can be justified only in lines of extremely heavy traffic.

Little Specific Data Available

The replies received demonstrate that the railroads as a whole are in possession of little concrete information regarding the relation of the rail sections to the traffic or cost of maintenance. The presence of other variables and the disturbing influences of varying maintenance policies during the past four or five years would have made it very difficult to arrive at any tangible conclusions, even if attempts had been made to obtain them. However, several roads have developed criteria or formulæ to serve as the bases for determining the weights of rail to be used. For instance it has been concluded on the Chicago, Rock Island & Pacific that a traffic of 2,000,000 ton miles, gross, per mile of line, for both passenger and freight traffic warrants the use of 90-lb. rail and that a traffic of 4,500,000 ton miles per mile of line justifies the use of 100-lb. rail. It is suggested by the chief engineer of another road that the 100-lb. A. R. A. type B rail is strong enough to carry the Cooper's E-60 loading, but that he finds that it is impossible to design a satisfactory angle bar that will take care of the joints properly on account of the limited fishing depth to be obtained in the 100-lb. rail. The same general thought is expressed by E. E. Adams, assistant to the president of the Union Pacific system, namely, that the weight on drivers and speeds are more important factors than the density of traffic. He states that the principal arguments which led to the adoption of the 100-lb. rail in place of the 90-lb. on that system were: "(1) Greater girder strength of the rails to sustain wheel loads and thereby minimize rail failures. (2) Giving better riding track, easier to maintain in line and surface."

The relation to loads carried has also been studied by the Baltimore & Ohio officers. Previous to the adoption of the 130-lb. A. R. A. on that road a detailed investigation was conducted covering the relations between engine wheel loads, car wheel loads, weight of rail and greater strength of the

rail, covering a period of 50 years from 1870 to 1920. These studies showed that:

Engine wheel loads increased... 85 per cent from 1889 to 1920
Car wheel loads increased.....118 per cent from 1889 to 1920
Weight of rail increased..... 15 per cent from 1889 to 1920
Strength of rail increased..... 22 per cent from 1889 to 1920

"With the adoption of the 130-lb. rail the increased weight and strength of the rail will more closely approach the increase in wheel load as the increased weight of the rail will be 53 per cent and the increased strength 82 per cent."

Others ascribe the advantage of the heavier rail to its greater wearing qualities, i. e., additional material available which may be worn away before the rail must be taken out of track. Thus J. E. Crawford, chief engineer of the Norfolk & Western, states: "We have found with 85-lb. rail on the low side of a curve the rail goes to pieces very rapidly after it has been in track a few years on our heavy traffic districts. The 100-lb. rail stands the traffic very well until it is worn considerably."

In Relation to Maintenance

There is a general agreement that increasing the weight of rails tends to decrease the expense of holding tracks to line and surface, but only two replies hazard an estimate as to what this would actually amount to in dollars and cents. It is estimated by officers of the Baltimore & Ohio that the use of 130-lb. instead of the 100-lb. rail results in a saving of 25 per cent in maintaining line and surface. A conclusion based on opinions expressed by supervisors of the Bessemer & Lake Erie, to whom this question was submitted, is that the maintenance of line and surface was cut from 10 to 15 per cent with a change to 130-lb. rail. Another road reports a life of 130-lb. rail 2½ times that of 100-lb. rail on six degree curves. While not expressed in figures, some of the statements are nevertheless specific. Thus G. L. Moore, engineer maintenance of way of the Lehigh Valley, states "The labor cost for maintaining line and surface is very materially reduced. We have track on 10-deg. curves put up in first-class condition (with 136-lb. rail) in 1916 and 1917 which is now in perfect line and surface, no work having been done since the track was put up four or five years ago, except to transpose the rails or renew the high side rails and transfer the high rail to the low side."

The Effect on the Ties

With respect to the relation of the weight of rail to the life of the ties, the general feeling is that regardless of the weight of the rail the ties should be adequately protected against wear and crushing by a proper distribution of the load transmitted to them from the rails, through the use of tie plates of ample bearing area. It is not considered consistent with economy to purchase larger rail on account of the better distribution of load to the tie that may be secured by reason of the greater width of rail base. At the same time it is recognized that some benefits do accrue. The greater stiffness of the heavier rail will effect a more uniform distribution of wheel loads. This, together with possibly a wider base, has, of course, resulted in a lessened mechanical depreciation of the ties. Track supervisors on the Bessemer & Lake Erie estimate this saving at 10 per cent, a corresponding saving in the ballast of 20 per cent, and on other miscellaneous items of the track of 10 per cent.

The reply of the Lehigh Valley in this regard is that "The 136-lb. rail provides a greater distribution of the wheel loads on the ties. The moment of inertia of this section is 86.57. Under our heavy traffic the ends of the ties under the low rail on the heavy curves tend to crush or squeeze. With the use of the 136-lb. rail a very noticeable improvement has been observed in this respect."

The testimony of some of the roads using the heavy weights of rail in regard to increased life is as follows:

The Baltimore & Ohio statement is "In heavy traffic territory where curvature is heavy and alinement generally unfavorable the life of the 130-lb. rail is considerably more than the life of the 100-lb. rail under the same conditions. On level straight track this would be somewhat reduced. On the average, however, the life of the 130-lb. rail should be at least 50 per cent more than that of 100-lb. rail."

Results on the Chesapeake & Ohio "show that the 130-lb. section is giving approximately two times the length of service, under the same traffic in the same location, that the 100-lb. A. R. A.-B section gave."

This is also the case on the Lehigh Valley, the statement being that "The increased life of this section on curves is very noticeable. Our records show more than double the life of the 100-lb. section of rail. On tangents the increased life of the heavy section is noticeable, but not to so great an extent, but the general condition of the track is improved with little or no labor because of the strength of the joint fastenings and rail section."

Anticipations on the Norfolk & Western are stated as follows: "We expect to receive twice the life from 130-lb. rail that we are now getting from 100-lb. rail at locations where heavy rail wear occurs."

Rail Failures Also an Item

Any discussion of rail failures is almost sure to raise the question of the effect of over-stress as a consequence of using a rail of limited strength. It is therefore of special interest to note the opinions of railway officers on the relation of the increase in the weight, i. e., the girder strength of rails to the prevalence of failures. Judging from the replies received to the question relating to this subject in the questionnaire, it would seem that this point is one of special interest to railway men concerned with track maintenance. That opinions are not all the same may be judged from some of the quotations given below.

G. J. Ray, who has been prominently identified with this subject as the chairman of the Committee on Rail of the American Railway Engineering Association, expressed his opinion as follows:

"Regardless of the size of the section there would be little or no economy in using a greater depth of head than we now have with our 105-lb. section. The width might be increased by ¼ in. but not more with the present rolling stock. As the weight of rail has been increased it has been found that higher carbons must be used in order to secure a rail of equal wearing qualities. On the other hand it has been contended that with the heavier section it is safe to go to a harder rail. As a matter of fact an examination of the rail records covering the heavier sections as compared with the lighter sections, that is, sections of 120-lb. and over compared with the 100 and 105-lb. sections, disclose the fact that we are having very heavy breakage with the heavier rail. While this may be due to the fact that the carbons have been kept excessively high, it is, nevertheless, a plain indication that we are not getting away from rail breakage b the use of heavier rail sections."

Earl Stimson, chief engineer of maintenance of the Baltimore & Ohio, also states: "Since the open hearth process of manufacture has become almost universally used, railroads have been experiencing considerable trouble with the type of rail failure commonly called the transverse fissure. The practical abandonment of the Bessemer process has eliminated very largely a number of web and base rail failures and to a very large extent of slag inclusion head failure generally known as the split head. These failures, which were generally recognized, were usually detected previous to total failure of the rail. The transverse fissure failure is extremely difficult to detect as it is essentially an interior defect. This type has been the subject of considerable study by engineers generally within the past four or five years in order to determine, if possible, the cause of such failure. A number of theories were advanced, probably the most prominent

of which is what is known as the overstressed rail. Quite a large number of engineers are giving serious consideration to this theory and some have accepted it as the cause of the failure.

"If, then, the cause of the failure is overstressed metal, such failure must be due largely to the excessive wheel load, as compared to the strength of the rail. The adoption of the 130-lb. rail should then reduce the failures attributed to the transverse fissures. If the heavier section rail will reduce to any extent this indefinite, dangerous, type of failure, its adoption is surely worthy of serious consideration."

Taken as a whole, the answers on this point are decidedly variant. Of those who gave a definite reply to this question 11 anticipate or experience no reduction in rail failures as a consequence of the use of increased sizes, while 7 are of the opinion that an appreciable reduction in failure has been or should be obtained. The answers from officers of roads that have used the 130-lb. rail or a heavier section are of particular interest in this regard. The reply of the Chesapeake & Ohio states: "No material difference noted in the number of rail failures." That of the Norfolk & Western is: "We do not expect any reduction in rail failure from the heavy rail." The Bessemer & Lake Erie and the Lehigh Valley on the other hand have experienced no little benefit. Thus the statement of the Bessemer & Lake Erie is as follows: "We have had no rail breakages with the 130-lb. section and very few rail failures. In other words, as far as our present experience goes, rail failures seem to be reduced with the 130-lb. rail sections."

G. L. Moore, engineer maintenance of way of the Lehigh Valley, also testifies to reductions in failures as the result of the use of the 136-lb. rail, but points also to the defective condition of certain rollings of these heavy rail. "We have found that the number of rail failures in any section of rail bears a distinct relation to the conditions at the mill when the rolling was made. In most rollings where general conditions were unsatisfactory, we have found the results reflected by the rails under traffic to be in accordance and generally in proportion to the degree of general unsatisfactory conditions existing during the rolling. Other rollings have proven generally very satisfactory. This is true of 136-lb. sections, as well as any other, and it has been noteworthy in our experience that the rail failures under traffic bear no relation to the average or range of the carbon content in the rollings. Generally in the most satisfactory rollings in every respect the mills have also found it possible to better satisfy our requirements for the range of carbon content sufficiently high to insure a good wearing quality of steel for the section. While the rails from some rollings have not given as good results as those from others, the behavior of the 136-lb. rail, with the exception of such few particular rollings, has been such as to show us conclusively that we are better protected against dangerous rail failures by the heavy section in proportion at least to the general strength of that section over the lighter ones."

Saving the Railroads for Private Control

Officers Have Large Responsibility in Securing the Right Kind of Co-operation from the Men

By Franklin Snow

THE WRITER has recently had the opportunity of chatting with two employees of railroad operating departments, employed on two different great railway systems. These men were considerably above the average in intelligence. Their ideas, however, were as different as could be imagined. The one, a brakeman on the crack limited train of an eastern line, was an officer of his brotherhood, and despite his apparent opportunity of rising above his fellow-workers, his feeling was that he preferred to remain in his present capacity rather than to give up his union activities with the eventual expectation of becoming trainmaster, with its greater responsibilities and the consequent necessity of giving up his efforts through brotherhood channels, of assisting his friends' "cause." The other man, a yard conductor in a New York terminal, regarded his brotherhood affiliation with pride, but utilized his spare time to a study which he expected would earn him a promotion. The former was far from being in sympathy with his company's policies, while the latter boasted of his friendship with the superintendent.

Lest the moral of the above be not obvious, let it be explained that the contrasted attitudes of these two men represents the basis of future railroad failure or success in this country. The one places his loyalty to his union above that to his company. The other has his entire thought devoted to improving his employer's interests. What a pity that the activities of the former in behalf of his brotherhood could not have been utilized jointly with the company's interests.

Serious Lack of Understanding

It is this lack of understanding—of co-operation between companies and unions and between officials and employees, which is costing every road many thousands of dollars of unnecessary waste annually. It is a question as to which is the more to blame for this unfortunate state of affairs—the men or their officers.

The writer, during his connection with the United States Railroad Administration, had an opportunity of learning the really true loyalty of the great mass of railroad workers. True, their desire to make a success of government control was partially due to their belief that it would be to their own greater financial advantage to have the roads remain under federal control. Nevertheless, the mass of letters written by trainmen, conductors, dispatchers, and others, pointing out improper operating methods, rang with the true tone of loyalty.

These unsolicited letters (all promising co-operation) certainly indicated a lack of the proper understanding between these men and their immediate superiors, else they would not have gone over their officers' heads with such matters. The charges of near-sabotage against railroad officials, *after* the war were familiar ones in Washington, and many investigations resulted. Unfortunately, and unwisely, these investigations were referred eventually to the actual superiors of the men making the charges. It is needless to add that men whose idea in writing was merely to save their country money were discharged from service.

That their letters had a basis of fact was indicated by the fact that from all sections of the country came the same cry, "over-tonnage." It was evident, and still is, that many trainmasters, in their desire to make a good showing, load the engine to the last ton, with the result that the train creeps over the division, doubling on hills, failing to make meeting-

points, and eventually is tied up by the 16-hour law. There is little doubt but that an occasional conference between division officers and train and enginemen would obviate many engine failures by pointing out the difference in capacity between locomotives even of the same class and rating.

Get-Together Meetings

Some railroads, notably the Pennsylvania System, realizing that many new ideas come from the men in the ranks, have organized committees of officers and men to meet regularly in an informal manner for the exchange of thoughts. Such a system cannot fail to prove its merit, even though nothing more tangible than the foundation of a cordial, co-operative spirit between officers and men is produced. The relations established by friendly meetings of this nature, even though nothing more important is discussed than topics of the day, is worth many times the hour spent in such conference.

But it is not only in the transportation and mechanical departments that these joint committees can be developed. Traffic, auditing and other departments can just as profitably, and with less loss of time in assembling the members from their places of duty, have get-together meetings.

The basic principle of the conference, namely, the creation of a friendly atmosphere aimed toward wiping out the present almost hostile attitude which some employees bear toward their superiors who endeavor to establish too great a class distinction—should never be lost sight of. That such distinctions are carried too far is evidenced by the practice of certain officers who expect trainmen, passing through a business car carrying only men, to remove their hats, and who further expect rear flagmen to ride on the platform rather than in the observation parlor, even in inclement weather. The explanation of the remark made by Edward Hungerford, in one of his recent interesting articles, that the railroads are not operated by as loyal employees as formerly can be seen by the foregoing. The loyalty is not brought out in the right way by the exercise of personality by officials in a position to win the affections of their men.

Few executives have the marvellous personality and the hail-fellow-well-met manner which has made Charles M. Schwab so justly famous, but, nevertheless, there is no question but that a man will double his endeavors for a boss with a cheery "Good-morning" and a smile for all. In this way an official, even though he be not blessed with any great amount of personal magnetism, can build up a loyal, industrious organization—one of which he can be proud and which will be proud of him—with no loss to his dignity.

Biting the Hand That Feeds Them

The purpose of this article, however, is not to make martyrs of railroad employees. Many there are who fall far short of the proper enthusiasm for their work and their employers. A discouraging incident recently came to the writer's attention.

A ticket-seller in the consolidated office of one of our large Middle Western cities sold a ticket and lower berth to New York to a traveller. In accepting the price of the tickets, amounting to between $30 and $40, he made the remark that this seemed to be "a mighty high rate for so short a trip," with some additional observations as to his belief that the railroads were misrepresenting their necessities for high charges, and that statements of revenues were being juggled.

Such remarks, to most business men, would be too ridiculous for comment, and in the particular instance the next man in line nailed the true facts to the story by observing that "You fellows behind the counters are getting most of it in too high salaries." However, there is a certain subtleness in such remarks, that if made several times a day by several ticket-sellers, would send the less-informed people to their trains with a bad thought (from a railroad point of view) in their minds. It is matter for congratulation that the great mass of railroad workers are not foolish enough to bite the hand which feeds them by any such insidious propaganda, whatever may be their personal opinions.

Right here again is where our little committee of co-operation demonstrates its usefulness. Our man, above described, might be one of those chosen to serve on a committee with officers having jurisdiction over consolidated ticket office matters. Gradually, through the interchange of ideas on railroad and extraneous matters, the employee would get the proper point of view, and come to a fuller realization of the problem the companies are up against, with high operating ratios predicated on high wages. Returning to his work, he would educate his companions to a like appreciation of the gravity of the fight which the railroads are making.

Encourage Initiative and Ideas

All too few officials appreciate the value of encouraging their men to advance ideas and to criticise current methods which they believe can be improved upon. The writer, at the outset of his railroad career at the age of seventeen, was offered a minor position in the auditing department of a certain New England line through acquaintanceship with a high traffic officer of the line. Hearing discussions of the errors of some agents in short-hauling their company, he came to the conclusion from waybills passing through his hands, that his particular company was being short-hauled on a very considerable amount of traffic; gathering the necessary data to confirm his opinions, he called on his official friend, entirely unconscious at the time of the crime of going over his superior's head. The officer visited, in a courteous and kindly manner, pointed out the reason for the routing assigned to this traffic, and explained that the company's proportion of the rate would be the same no matter how this particular freight was routed, the interview closing with the thanks of this gentleman for the interest displayed.

A few days later the chief clerk heard of the matter, when ensued a lively ten minutes, the writer being severely reprimanded (properly, as he now sees) for going over his superior's head, and being cautioned "never again to question anything which did not appear right, leaving such affairs for others to pass judgment on." Let it be said that this man's name had not yet appeared in the "Pocket List," nor does he deserve a title. The moral is obvious, that this man, in a supervisory capacity, should have been broad enough to realize that a young man sufficiently interested to report matters which he thought incorrect, to an official's attention, should be encouraged in every way possible to continue such loyalty toward his employer, and in the particular instance mentioned, a mild rebuke for the entirely unwitting error in going over his superior's head would have sufficed.

It is seldom, in the transportation field, that a man of small capacity, or mind, becomes an official, but any officer who reads these lines and realizes that he has, at any time, been unreceptive to ideas, and has failed to encourage those advancing such suggestions (even though valueless in themselves) for the good of the company—this man must take stock of himself and realize that such failure is a direct act of disloyalty to his company's best interests. In failing to bring out the best in his men he has neglected his duty.

The next year or two will tell the tale forever for our railroads. If they fail this time to make good, the government will seize them for all time. They have every chance in their favor. Never before have so few criticisms of railroad management been offered by the public. Scarcely a person today but wants to see the perpetuation of private control. On every officer, either in an executive position or in a minor supervisory capacity, is now placed the responsibility of getting the best out of his men, by enlisting their co-operation, by encouraging their initiative and ideas, and by being human and courteous in his dealings with them. In this way only can our railroads survive their present near-crisis and pass the turning point to prosperity.

Railroad Funding Bill Approved in Lower House

Measure Referred to Senate Which Has Taken a Four-Weeks' Recess—McAdoo Opposed to Bill

WASHINGTON, D. C.

LATE IN THE evening of August 22 the House passed the railroad funding bill by a vote of 214 to 120. Now it awaits passage by the Senate after the recess, which began on Wednesday, before the relief contemplated can be extended to the railroads.

The bill was passed without material change. As it stands, the War Finance Corporation is authorized to purchase from the Railroad Administration securities accepted by the administration from the railroads in settlement of claims of the government against them. The corporaion is further authorized to sell the securities in the open market, to use the funds thus obtained to extend not exceeding $500,000,000 in credit to the carriers.

An amendment offered by Representative Webster, Republican, of Washington, was defeated. It proposed to strike out the section of the bill providing that no claims arising from so-called inefficiency of labor during the period of federal control of the railroads shall be paid out of the money advanced under the terms of the bill, and also that when claims are once paid the roads shall be barred forever from making further claims. The vote was 145 to 17 against the amendment.

Another amendment offered by Representative Moore, Democrat, of Virginia, which would require the War Finance Corporation to pass upon all securities of the railroads accepted by the Railroad Administration, was defeated without a record vote. Democrats in opposition to the bill charged during the debate on the floor of the House that the bill meant that the federal government was embarking upon speculation in railroad securities.

"Under this bill," declared Representative Huddleston, Democrat, of Alabama, "the government is proposing to speculate in Wall Street with the taxpayers' money."

Representative Webster bolted the Republican leadership and attacked the bill. He declared that it meant nothing more than federal loans to the railroads. Democrats charged that the bill was written by President Harding and his advisors and that the Republicans in passing it were carrying out instructions from the White House.

McAdoo Objects to Funding Bill

A letter written by W. G. McAdoo, formerly director general of railroads, opposing the funding bill, was read in the Senate on August 24 by Senator Stanley, Democrat, of Kentucky, one of the group who wanted Mr. McAdoo called before the Interstate Commerce Committee when hearings were being held and protested when the request was rejected.

Senator LaFollette, representatives of labor and other interests protested against the bill when it was before the committee and alleged that it was being "railroaded" through without giving its opponents a chance to be heard. Senator Stanley referred to these charges in presenting the McAdoo letter, and asserted that to carry out the provisions of the bill would "lick up" the last dollar made available to the War Finance Corporation in thirty days.

"I assert that the fabulous claim of nearly $800,000,000 now made by the carriers against the government," said Senator Stanley, "is composed principally of claims for 'maintenance of way,' and that from 70 to 75 per cent of that claim is based upon the so-called 'inefficiency of labor,' a claim repudiated by the Interstate Commerce Commission and by the director general of railroads as so speculative and contingent in character as to warrant no consideration whatsoever.

"The alleged inefficiency of labor is denounced by labor as gratuitous and unwarranted, and the representatives of labor day after day clamored for an opportunity to be heard, but, after hearing only those who conceived and created this thing, the seal of silence was placed upon the lips of the ex-director general and of all others who knew anything about this complicated case of stock jugglery, and the doors were shut in the face of labor."

Senator Stanley then presented Mr. McAdoo's letter, which, he said, "threw a flood of light upon this subject."

The government, Mr. McAdoo contended, was "under no obligation whatever" to advance to the railroads money for capital expenditures.

"In fact," he said, "the Federal Control act, approved March 21, 1918, expressly required that in every agreement between the United States and the railroads it should be stipulated that 'the United States may, by deductions from the just compensation (rental to be paid the railroads), or by other proper means and charges, be reimbursed for the cost of any additions, repairs, renewals and betterments to such property (railroad property) not justly chargeable to the United States.' "

Mr. McAdoo cited the standard contract made with various railroads providing for annual rentals to the carriers equal to the average of the net earnings of the best three years of their history, from July 1, 1914, to June 30, 1917, and said concerning them:

"In these contracts (Section 7) it was expressly agreed that the United States should have the right to deduct from such rentals 'all amounts required to reimburse the United States for the cost of additions and betterments made to the property of the company not justly chargeable to the United States, unless such matters are financed or otherwise taken care of by the company to the satisfaction of the director general.' The director general agreed, however, not to deduct for additions and betterments in such a way as to prevent the railroads from paying the fixed charges 'they had theretofore regularly paid.' "

"While I was director general," Mr. McAdoo wrote, "and Walker D. Hines was director general, the railroads were not required to pay for 'additions and betterments' out of the rental due them at the expense of dividends, nor to sell bonds or stocks, as they had heretofore done, to reimburse the government for these expenditures. The cost of such 'additions and betterments' was generously advanced by the United States, so that, on March 1, 1920, when the railroads were returned to private control, they owed (and still owe) the United States the enormous sum of $1,144,000,000. These 'additions and betterments' include 'motive power and equipment.'

"These expenditures were not forced upon the railroads. The railroads needed them and were glad to have the Government lend them the money at 6 per cent, which was less than the market rate. Congress had to appropriate this $1,144,000,000 out of taxes levied on the people, and these very appropriations for loans to the railroads have been used by unfriendly critics as a basis for the charge that Federal control was wasteful of government money, whereas the debt the railroads owe the government on this account is a valuable asset if those charged with the execution of the law insist upon satisfactory security as the law requires.

"Of this vast debt the United States has already extended, for a long period, the time for payment of $381,000,000, representing new 'locomotives and cars' furnished to the rail-

roads. This leaves now due for 'additions and betterments' the sum of approximately $763,000,000.

"While it is true that the Transportation act seems to confer upon the President discretion to determine, within certain limitations, how much of the debt the United States owes the railroads may be set off against the debt the railroads owe the United States, nevertheless, the act does not contemplate that none of the debt of the United States shall be set off, but, on the contrary, assumes that it will be; because in express terms it provides for funding only 'the remaining indebtedness of the carriers to the United States.'

Says President Was Misled

"At any rate, it is indubitably clear that under the law and the contract between the parties, the United States is not 'morally and legally bound to fund,' as stated by the President in his message, the $763,000,000 of debt the railroads owe the Treasury for 'additions and betterments.' The President must have been misled into making such a statement. All that the United States is required to do, legally and morally, is to fund for ten years 'any remaining indebtedness of the carriers to the United States' after a balancing of accounts."

"Stripped of confusing non-essentials, what is now proposed is that the government shall wait ten years for $763,000,000 the railroads owe it for betterments and improvements, and pay immediately $500,000,000 to the railroads on account of claims for alleged undermaintenance, etc., taking from the 180 or more railroads involved with their varying degrees of financial responsibility such securities as they may be able to provide—securities which in many instances may not be adequate to protect the government against loss.

"This is not a question of 'legal and moral obligation' on the part of the United States to lend the railroads $500,000,000 more for ten years. It is a question of policy and should be considered from that standpoint only. For the adoption of such a policy the Administration must, of course, take the responsibility, but it should be candid about it. The public mind should not be confused by juggling of figures, manipulation of accounts or securities, or governmental agencies."

Railway Business Association Urges Action

Alba B. Johnson, president of the Railway Business Association, sent a telegram to President Harding on August 24 in which he said:

"For immediate passage of the Railroad Refunding bill the Railway Business Association, on behalf of industries whose employees are idle by hundreds of thousands, aggregating, with those in cognate or dependent industries and trade and with railway employees, not less than 1,000,000, as estimated by the managing director of the War Finance Corporation, urges you to exert your potent influence to the utmost.

"This measure was conceived independently in the public interest alone by one government department, the War Finance Corporation, and advocated in the same spirit by another, the Railroad Administration, without suggestion, aid or argument from the railroads or banks. Various factors of the economic situation tend to improvement in business. Remittances and orders from the railroads made possible by this bill, if passed, would furnish the strongest available reinforcement to that tendency.

"We do not address you as President. In that capacity you have already performed fully your constitutional function in causing the state of the nation as affected by this problem to be communicated to Congress through appropriate executives of the government. We address you as leader of the party in power which citizens can address through no other single repository of responsibility to the country. While deeply appreciative of what you have already done as President, and sympathetic with the embarrassment under which you suffer from confusion in some quarters of your official status as party leader, we urge you to consider the re-employment of a million men, many of whom, owing to seasonal limitations, if not employed immediately will pass both the autumn and winter without wages, as an object justifying your active participation in party councils to assure enactment of this measure, not after recess, but now. Ability, willingness and leadership to grapple effectively and promptly with so plain a business obligation is, in our judgment, a test of capacity to conduct government."

LaFollette Presents Minority Report

A voluminous minority report on the railroad refunding bill, written by Senator LaFollette and signed by Senators Stanley and Pittman, was presented to the Senate on August 24. This report gives seven "reasons" purporting to show why the bill should not be passed. These reasons are as follows:

1. The bill was reported by arbitrary action, upon ex parte hearings, after a refusal to permit testimony by critics of the legislation.

2. The bill would put the government into the business of dealing in railway securities. The War Finance Corporation would control an amount of securities probably larger than those of any private interest. The corporation would therefore be a dominant influence on the stock exchanges through its power to withhold or throw millions of dollars in securities on the market. This is not one of the legitimate functions of government, nor should the credit of the government be used for this purpose.

3. The government will lose hundreds of millions, almost certainly, as a result of the purposed transactions. The government accepts the securities on a 6 per cent basis, whereas the best securities are now upon a seven per cent basis, with inferior bonds yielding eight per cent or more. The government will not be able to sell the bonds on a 6 per cent basis to private investors or the banks. It will be obliged either to hold them until the market "by some miracle" is again on a 6 per cent basis, or by some future legislation authorize their sale at market prices. In the latter case the government stands to lose from $10 to $20 on every $100 worth of bonds sold. The government's losses would be increased if the market declined.

4. These transactions are not required to secure a just and speedy settlement of railroad claims. The argument is then made that the government is not "legally or morally" bound to fund the indebtedness of the railroads and a set-off is called for.

5. Imposition of this great problem of disposing of railroad securities taken over will inevitably hamper the War Finance Corporation in the more important function of financing the marketing of agricultural products.

6. No emergency of a character to justify the proposed transaction has been shown to exist. On the contrary, railroad earnings and railroad credits are steadily improving and are likely to improve more rapidly with the increase in traffic during the crop-moving season. The railroads need money, but no more than any other class of individuals and businesses.

7. During the past 18 months the government has paid or loaned the railroads $1,376,403,024. The people are overburdened with taxes. No reason is apparent why the government "should embark upon this highly speculative venture at this time."

A TOTAL OF 45 new industries, representing an investment of $4,430,100, were located along the line of the Chicago & Eastern Illinois during the past year, according to W. J. Jackson, receiver. It is estimated that the new industries will furnish employment for 2,109 persons and will give the railroad 11,000 cars of freight yearly.

Labor Board Settles Overtime Controversy

Compromise Decision Contains Seven New Rules to Govern Punitive Payments

SEVEN NEW RULES, recognizing and continuing the principle of punitive pay for overtime work in railroad shops, have been promulgated by the Railroad Labor Board as the solution of one of the stumbling blocks in the negotiation of new agreements regarding rules and working conditions between many railroads and their shop employees. These new rules, which are effective as of August 16 and are retroactive to July 1, also recognize and sanction the principle of the eight-hour day, the policy of paying time and one-half for work performed on Sundays and holidays except that work which is absolutely essential to continuous operation and the practice of paying an allowance to an employee called but not required to work. On the other hand, the provisions of the seven new rules so change the overtime rules in the Shop Crafts Agreement that several of the wasteful and ridiculous effects brought to the attention of the Board during the hearings on national agreements will not be continued.

The new rules are to take the place of Rules 7, 9, 10, 12, 14 and 15 of the Shop Crafts National Agreement. The changes which have been made are briefly outlined in the following paragraphs. In all other respects the rules have been unchanged.

RULE 6

Instead of paying all shop employees time and one-half for Sunday and holiday work as was necessary under Rule 6 of the Shop Crafts Agreement, the new rule prepared by the Board provides that "employees necessary to the operation of power houses, mill-wright gangs, heat treating plants, train yards, running repair and inspection forces, who are regularly assigned by bulletin to work Sundays and holidays, will be compensated on the same basis as on week days." The new rule also contains the interesting phrase, "Sunday and holiday work will be required only when absolutely essential to the continuous operation of the railroad."

RULE 7

Rule 7 of the Shop Crafts Agreement has been changed so that instead of receiving a guarantee of one hour's pay for 40 minutes or less continuous overtime service with the right to go to meals after one hour's work, the shop employee will be paid time and one-half on an actual minute basis with a minimum of one hour, and he can be held for two hours before going to meals. The time then taken for meals will not terminate the employee's continuous service and must be paid for up to 30 minutes.

Again, instead of receiving five hours' pay for three hours and 20 minutes service or less when called to return to work the employee is to be paid a minimum of four hours for two hours and 40 minutes or less work. This four hours' pay must also be paid to employees called but not used.

During the course of hearings on the national agreements the railroads objected particularly to the provision of the old rule which allowed the employee to collect 10 or 15 hours' pay on the ground that, when he had completed the task for which he was called, his assignment to other emergency work constituted a second and sometimes a third call. To offset this the new rule says: "Employees called * * * will be required to do only such work as called for *or other emergency work which may have developed after they were called and cannot be performed by the regular force in time to avoid delays to train movement.*"

The new rule also makes provision for paying employees time and one-half on an actual minute basis with a minimum of one hour for work performed in advance of the regular working period.

RULE 9

Rule 9 in the Shop Crafts Agreement gives the employee who works through his lunch period one hour's pay and the opportunity to procure his lunch later without loss of time. The new rule gives him but straight time and the opportunity to procure his lunch later without loss of time *up to* 30 *minutes.*

RULE 10

The railroads protested the provisions of Rule 10 of the Shop Crafts Agreement which enabled shop employees, sent out on the road for emergency service, to receive, under certain conditions, time and one-half for time spent in waiting for trains or in traveling. The new rule prepared by the Board eliminates these provisions, giving the employee on such work straight time for all time waiting or traveling.

The time of the employee sent out for such service was formerly reckoned from the time called until his return, but under the new rule his time begins when he leaves his home station.

Again, when such emergency service kept the employee on the road for several days, including either Sundays or holidays, he was guaranteed eight hours pay for week days and time and one-half for Sundays and holidays. Under the provisions of the new rule he is guaranteed but eight hours pay for each calendar day.

The new rule also provides that when an employee is required to leave his home station during overtime hours he will be allowed one hour's pay as preparatory time.

The following provision for wrecking service employees is added to the new rule:

"Wrecking service employees will be paid under this rule, except that all time working, waiting or traveling on Sundays and holidays will be paid for at rate of time and one-half, and all time working, waiting or traveling on week days after the recognized straight-time hours at home station, will also be paid for at rate of time and one-half."

RULE 12

Changes similar to those made in Rule 10 are made in Rule 12, the provisions of which apply to employees sent out to fill temporary vacancies at outlying points. The railroads particularly objected to the last paragraph of Rule 12 of the Shop Crafts Agreement, which continued those rules more favorable to the employees in older agreements. The new rule contains no provision for the continuation of these older rules.

RULE 14

Those shop employees regularly assigned to road work who have been paid, under Rule 14 of the Shop Crafts Agreement, straight-time for their regular hours and time and one-half for all overtime hours whether working, waiting or traveling will, under the revised rule, receive straight time for all hours traveling, waiting or working during regular hours and time and one-half only for work performed during overtime hours.

The new rule also contains the following paragraphs which are not included in the old rule.

"Where meals and lodging are not provided by the company when away from home station, actual expenses will be allowed.

"Where employees are required to use boarding cars, the railroad will furnish sanitary cars and equip them for cooking, heating and lodging; the present practice of furnishing cooks and equipment, and maintaining and operating the cars, shall be continued."

The starting time in both the old and revised rules is set at from 6 a. m. to 8 a. m. However, the following exception is included in the new rule:

"In case where the schedule of trains interferes with the starting time an agreement may be entered into by the superintendent of the department affected and the general chairman of the craft affected."

Rule 15

Rule 15 of the Shop Crafts Agreement has been changed to conform to the Board's decision relative to the payment of time and one-half for work performed on Sundays and holidays inasmuch as this rule applies to employees regularly assigned to road work and paid on a monthly basis. Whereas formerly the monthly rate of these employees was determined by dividing 3,156 hours, which includes 59 Sundays and holidays at time and one-half, by 12, their monthly rate is now to be deducted by dividing 2,920 hours, or 365 eight-hour days, by 12.

The new rule also contains the following paragraphs which will eliminate some of the features to which the carriers have strenuously objected:

"The regularly assigned road men under the provisions of this rule may be used, when at home point, to perform shop work in connection with the work of their regular assignments.

"If it is found that this rule does not produce adequate compensation for certain of these positions by reason of the occupants thereof being required to work excessive hours, the salary for these positions may be taken up for adjustment."

Board Outlines Its Opinions on the Subject of Overtime

The Board in handing down these new rules said in part:

There was a wide diversity of rules among the numerous railroads of this country prior to the standardization that took place during federal control. It is therefore possible to cite precedents for almost any rule that may be advocated. Such precedents, at best, are persuasive, but not controlling. The fact that a given rule may once have existed by agreement on a road is not conclusive of its reasonableness and justness, for it may have been imposed on the employees by unavoidable necessity or on the carrier by economic pressure. The Board has therefore felt constrained to consider the principles of right and wrong involved in the proposals and counter-proposals submitted to it, in the light of present conditions and industrial history.

Throughout these rules, the soundness of the principle of punitive pay for overtime work has been recognized, but not to the extreme extent embodied in the National Agreement.

The eight-hour day has also been given full recognition. The policy of paying time and one-half for work performed on Sundays and holidays is also approved in Rule 6, but an important exception is provided. Certain kinds of work, which are unavoidably and regularly performed on Sundays and holidays and which are absolutely essential to the continuous operation of the railroad to meet the requirements of the public, are not treated as overtime work. The carrier has no choice as to the performance of this work, and does not arbitrarily require it. It is not just to penalize the carrier for that which it cannot escape. Manufacturing plants can, as a rule, control or eliminate Sunday and holiday work, therefore, a comparison of such plants with a railroad is unfair, except in so far as the "back shop" is concerned, and the method of paying for overtime in the back shop has not been disturbed by these rules.

There are other classes of employment in which Sunday and holiday work is regular and necessary, and those engaged in it are not paid overtime; for example, engineers, firemen, conductors, and trainmen, and, going outside of railroad service, police and fire department employees, and street car conductors and motormen.

The practice of allowing five hours for a call is a relic of the time when ten hours constituted a day's work, and it was thought just and reasonable to allow one-half day, or five hours, for a call. Now that the hours have been reduced to eight, by the same principle, it is just and reasonable to make the allowance one-half day or four hours.

Employees usually commence work between 7 a. m. and 7.30 a. m., with a lunch period in the neighborhood of 12 o'clock noon, and finish their regular eight-hour period at 4 p. m. Certainly, there is no hardship in asking employees to continue on to 6 p. m. (if their services are required) before they go to a meal, and in many cases workmen would prefer to work the additional two hours in order to complete their work and go home without having to return.

If men are called after regular hours for some emergency work, it is fair and reasonable to use these men only on other emergency work which may have developed after they were called without being obliged to call them again or to call other men.

When men are sent out on the road for emergency service, or to fill temporary vacancies, it is certainly just and reasonable to pay them straight time for all time traveling or waiting, and for all time worked, straight time for straight-time hours, and overtime for overtime-hours in accordance with the practice at the home station or at the point where they are temporarily employed.

It is just and reasonable that men assigned to road service on a monthly basis should be paid eight hours per day, 365 days per year, without any allowance for overtime.

It is a fact that on many Sundays and holidays these men are not called upon to work, but no deduction is made in their pay. These monthly positions must be desirable because they are usually occupied by the older men, and there is regularity as to the monthly compensation.

The Board has felt impelled, however, to decline many of the modifications of said rules advocated by the carriers, because they appeared to go to an opposite extreme that is unjust and unreasonable. In this case, as so often happens in human experience, there is a point somewhere between the extreme positions of opposing forces where justice and reason may be found.

The rules above set out will become effective August 16, 1921, except that employees who have been paid under a less favorable rate or condition for the period embracing July 1 to August 15, 1921, inclusive, shall be reimbursed under these rules.

Dissenting Opinion of A. O. Wharton

For the first time in the history of the Labor Board a dissenting opinion accompanied the decision. A. O. Wharton, labor representative on the Board, in a lengthy argument opposed the decision of the majority on the grounds that "it does not appear either just or reasonable that conditions that have been in effect from 10 to 20 years and even longer, established as a result of negotiation and mutual agreement between employers and employees, and not infrequently established where no organization of employees existed, can now be decided as unjust or unreasonable." In support of this contention Mr. Wharton cited the overtime provisions for the shop employees in effect on approximately 100 carriers prior to December 31, 1917, adding, "No charge was made by the carriers and no evidence submitted to the Board that would justify any statement to the effect that any of the rules resulting from negotiation between 1902 and December, 1917, were the result of an undue exercise of the economic strength of the employees' organizations."

Regarding the majority ruling as to straight time rates for Sunday and holiday work for certain classes of employees whose work is necessary to maintain continuous operation, Mr. Wharton said:

"As a matter of fact and recorded in the public hearings conducted by the Board, with representatives of the carriers present and not challenging the statement, overtime at the rate of time and one-half for Sunday and holiday work, and for work outside of the regular established day, has been in effect for this class of employees for not less than 40 years; it was voluntarily put into effect 20 years prior to the time the shop crafts had organization sufficient to negotiate working conditions."

After making several comparisons regarding practices of public utilities and municipalities regarding punitive payments for Sunday, holiday and overtime work, Mr. Wharton cited a compilation prepared by representatives of the Federated Shop Crafts and showing the overtime practices prevailing in 2,544 firms in practically all states of the union during 1920. This compilation shows that 869 of these firms paid double time for all overtime, that 2,270 paid time

and one-half or better for all time worked outside of regular hours and that but 49 paid straight time for all overtime.

"The plea that continuous service requirements should be a controlling factor in deciding that employees should be compelled to perform Sunday and holiday service for the same rate paid on week days," Mr. Wharton continued, "or that men should be assigned to duty 365 days per year, with millions of workers walking the streets in search of employment is a fallacy not sustained by any recognized authority qualified to pass . . . upon a question . . . associated with the social and moral well-being of the nation's workers."

The Division of the Board on General Atterbury's Requests

In closing his dissenting opinion, Mr. Wharton quoted the minutes of the Board's executive session on February 9, at which the request of General W. W. Atterbury for immediate abrogation of national agreements, return to the working conditions of December 31, 1917, and the right to pay unskilled labor the prevailing rate in the locality in which they are employed, was under consideration. These minutes, which have heretofore been carefully guarded from public perusal, show that the announcement of the Board on February 10 denying General Atterbury's requests was drawn up by Henry T. Hunt, a member of the public group on the Board at that time. The quotation from the minutes also showed that W. L. Park, member of the railroad group, sought to have the Board terminate national agreements at that time, but was supported only by the other two representatives of the railroads. Five members of the Board, three labor and two public, voted against Mr. Park's resolution. Judge Barton, chairman of the Board and a member of the public group, did not vote. Mr. Hunt's announcement was adopted by the vote of the three labor representatives, Mr. Hunt and G. W. W. Hanger, public representatives, and J. H. Elliott, railroad representative. Mr. Park, Horace Baker and Judge Barton voted against the announcement.

Freight Car Loading

WASHINGTON, D. C.

AN INCREASE OF 24,184 in the number of cars loaded with revenue freight during the week which ended on August 13, as compared with the previous week, was shown by the reports of the Car Service Division of the American Railway Association. The total loadings for the week were 808,965 cars, which was, however, 162,304 cars less than were loaded during the corresponding week in 1920 and 23,474 cars below the total for the corresponding week in 1919.

Increases in the loading of all commodities were reported. The principal gain was in the loading of coal, the total for the week being 158,260 cars, which was an increase of 10,987 cars over that for the preceding week. It was, however, 63,500 cars less than were loaded during the corresponding week last year.

Tabulations also showed an increase of 7,209 cars compared with the week before in the number loaded with merchandise and miscellaneous freight which includes manufactured products, the total being 479,749 cars. Loadings of grain and grain products were 61,560 cars compared with 38,708 cars during the corresponding week last year and 45,651 cars compared with the same week in 1919. An increase of 225 cars in the number loaded with live stock was also reported, the total being 26,835 cars, which was 261 more than were loaded during the corresponding week last year.

Except for the Southwestern district, increases in the loading of all commodities compared with the week which ended on August 6 were reported in all districts, but in none did the total loadings equal those for the same district for the corresponding week last year.

Due principally to the increased demand for transportation facilities, a further decrease of 13,446 was reported in the number of freight cars temporarily out of service on August 15 because of business conditions (i. e., surplus cars plus bad order cars in excess of 7 per cent of the total), compared with the total on August 8, according to reports of the Car Service Division of the American Railway Association. This total on August 15 was 499,594, compared with 513,040 the week before.

Tabulations showed that of the total, 284,338 were serviceable freight cars while the remaining 215,256 needed repairs. Surplus box cars in good order totaled 84,522 on August 15, which was a decrease within a week of 4,071, while surplus coal cars which could be placed immediately in service if freight conditions warranted numbered 145,072 or 7,702 less than were reported on August 8.

A reduction in the car shortage, which has been reported at certain points, was shown by the reports. On August 15, this shortage was 2,125, or 1,239 below what it was on August 8.

REVENUE FREIGHT LOADED AND RECEIVED FROM CONNECTIONS

SUMMARY—ALL DISTRICTS, COMPARISON OF TOTALS THIS YEAR, LAST YEAR, TWO YEARS AGO. FOR WEEK ENDED SATURDAY, AUGUST 6, 1921

Districts:	Year	Grain and grain products	Live stock	Coal	Coke	Forest products	Ore	Merchandise L.C.L.	Miscellaneous	Total revenue freight loaded: This year	Total revenue freight loaded: Corresponding year	Total revenue freight loaded: Corresponding year	Received from connections: This year	Received from connections: Corresponding year	Received from connections: Corresponding year
										1921	1920	1919	1921	1920	1919
Eastern	1921	9,174	2,630	39,290	909	4,430	2,029	55,073	74,907	188,442	.....	.....	194,039	.....	.....
	1920	6,906	2,747	53,840	3,928	7,893	9,850	45,631	99,859	.....	230,654	*219,150	.....	274,403	222,367
Allegheny	1921	3,566	2,934	42,604	2,221	2,097	7,068	42,531	49,511	152,532	.....	.....	104,535	.....	.....
	1920	3,203	3,263	59,987	5,480	3,207	11,983	37,030	68,841	.....	192,994	196,334	.....	146,676	138,303
Pocahontas	1921	222	155	16,506	15	1,087	9	2,489	4,741	25,224	.....	.....	13,249	.....	.....
	1920	213	212	25,093	653	1,740	193	2,805	6,425	.....	37,334	29,609	.....	19,788	15,486
Southern	1921	3,961	1,805	19,664	244	13,502	221	35,260	33,855	108,512	.....	.....	62,052	.....	.....
	1920	3,032	2,052	26,581	1,436	16,784	2,770	33,791	41,000	.....	127,446	122,978	.....	72,230	58,962
Northwestern	1921	13,268	7,126	7,790	436	11,310	21,408	28,332	33,675	123,345	.....	.....	48,202	.....	.....
	1920	8,139	6,864	10,281	1,321	17,510	45,740	30,491	38,649	.....	158,995	123,840	.....	58,929	49,311
Central Western	1921	20,792	9,020	17,070	184	4,960	560	29,939	40,039	122,564	.....	.....	53,907	.....	.....
	1920	11,523	8,499	17,702	414	6,133	5,706	31,208	43,829	.....	125,014	124,633	.....	66,455	65,479
Southwestern	1921	7,639	2,940	4,349	209	6,074	763	15,712	26,476	64,162	.....	.....	46,263	.....	.....
	1920	4,128	2,567	5,245	138	7,903	638	17,115	25,559	.....	63,293	55,529	.....	47,836	47,009
Total, all roads	1921	58,622	26,610	147,273	4,218	43,460	32,058	209,336	263,204	784,781	.....	.....	522,247	.....	.....
	1920	37,144	26,204	198,729	13,370	61,170	76,880	198,071	324,162	.....	935,730	.....	.....	686,317	.....
	1919	45,651	23,595	174,578	8,567	64,414	51,333	128,270	364,889	.....	.....	*872,073	.....	.....	596,917
Increase compared	1920	21,478	406	.....	.....	.....	.....	11,265	.....	.....	.....	.....	.....	.....	.....
Decrease compared	1920	.....	.....	51,456	9,152	17,710	44,822	.....	60,958	150,949	.....	.....	164,076	.....	.....
Increase compared	1919	12,971	3,015	.....	.....	.....	.....	81,066	.....	.....	.....	.....	.....	.....	.....
Decrease compared	1919	.....	.....	27,305	4,349	20,954	19,275	.....	101,685	87,292	.....	.....	74,670	.....	.....
July 30	1921	66,416	25,358	151,089	4,111	44,712	30,103	210,367	264,414	796,570	936,366	*925,195	520,201	694,788	648,690
July 23	1921	64,919	24,689	152,142	3,928	43,126	33,655	208,316	259,573	790,348	928,418	*909,682	503,926	673,219	628,308
July 16	1921	56,991	24,802	152,116	3,737	44,037	31,484	208,079	255,006	776,252	942,851	809,845	484,300	681,684	627,841
July 9	1921	38,015	21,067	126,331	3,830	34,356	26,312	180,658	209,129	639,698	796,191	743,226	434,929	633,997	554,129

L.C.L. merchandise loading figures for 1921 and 1920 are not comparable as some roads are not able to separate their L.C.L. freight and miscellaneous of 1920. Add merchandise and miscellaneous columns to get a fair comparison.

*Detail figures for 1919 for Michigan Central not given.

General News Department

The nomination of Frederick I. Cox, of New Jersey, to be a member of the Interstate Commerce Commission, was confirmed by the Senate on Tuesday, August 23.

The Union Pacific shops at North Platte, Neb., have been reopened after being closed 7 months. Approximately 45 per cent of the former employees have been rehired.

A new organization of railway maintenance supervisory officers was formed in Chicago on August 17 under the name of the "Maintenance of Way Club of Chicago" with an initial membership of 53. The purpose of this club is the holding of meetings from time to time for the discussion of maintenance of way problems. The membership will consist of raliway officers and others interested in the maintenance of railway tracks and structures. J. B. Martin, supervisor of track, New York Central, Elkhart, Ind., was elected president.

Implement Manufacturers Urge Abrogation of All Labor Agreements

W. H. Stackhouse, president of the National Implement and Vehicle Association, has issued a statement setting forth the association's ideas regarding the railroad labor problem. Mr. Stackhouse urges as imperative that the "iniquitous Adamson law" be repealed, and, in addition, that the Labor Board be directed "to abrogate all labor agreements, including the unionization of our great transportation system."

High Average of On Time Trains on the Pennsylvania

The Pennsylvania Railroad reports that in the Central Region on Tuesday, the 16th of August, 971 or 98.8 per cent of the 983 passenger trains operated in that territory arrived at their destinations on time and 982 trains or 99.9 per cent maintained schedule or better. The best previous daily record was made on July 25, when 99.7 per cent of the trains maintained schedule. In the month of July 98.9 per cent of the trains made schedule, an improvement of 3 per cent over July, 1920.

Safety Section—A. R. A.

Safety Section, Operating Division of the American Railway Association will hold its first annual meeting at the Hotel Copley-Plaza, Copley Square, Boston, Mass., on Monday, September 26, beginning at 8:00 a. m. Eastern standard time. It is expected that progress reports will be submitted by the committee of direction; the publicity and educational committee, and the committee on prevention of grade crossing accidents. Hotel reservations should be made direct with the Hotel Management without delay.

Gasoline Motorbus in Railway Service

The Bennettsville & Cheraw Railroad Company, Bennettsville, S. C., has just had completed by the Charlotte Wagon & Auto Works of Charlotte, N. C., a combination trailer car to be operated in connection with its motorbus passenger car which has been run for some time. Concerning the motorbus car a letter from Superintendent W. J. Pooser to the Manufacturers Record says:

"This car was designed by our president, J. J. Heckart, using an ordinary 3-ton Corbett truck chassis. The Corbett Motor Company, Henderson, N. C., built the body, it having a capacity of 31 passengers. This car, having no compartment for baggage and mail, we had the trailer built after determining the power and speed of the original car.

"Our experience has been very satisfactory; while our passenger traffic is light, the operation of this car has proven to us the value of this kind of equipment for short lines.

"The average cost per mile for operation being 13.5 cents; average mileage per gallon of gas 8.5 miles."

150 Cars, Eleven Miles an Hour

On August 7, the Ann Arbor Railroad ran what is said to be the longest freight train ever operated in the State of Michigan. It was from Owosso, Mich., southward to Toledo, Ohio, 104 miles. The train left Owosso at 6:15 a. m., with 53 loads and 97 empties, weighing 3,932 tons, and arrived at Toledo at 4:00 p. m., with 53 loads and 98 empties, weighing 3,951 tons. It was hauled by one locomotive of the Santa Fe type with 70,000-lb. tractive effort, equipped with duplex stokers, except that a pusher was used for four miles out of Owosso.

"Fuel Economy Month"

September has been designated as Fuel Economy Month by the Illinois Central and the campaign will apply to all departments using coal. The goal for the month has been set at 20 per cent less than the September record in former years. The best previous month's record in freight service was 133 lb. per 1,000 gross ton miles in June, 1918; in passenger service the best month's record was 1,637 lb. per 100 passenger car miles for August, 1916; while in switching service the best record was 117 lb. per switch engine mile in September, 1918. Weekly progress reports will be made by the divisional fuel committees.

Claims Prevention Campaign on the Southern Pacific

The Southern Pacific, Pacific System, will conduct a freight claim prevention campaign to last during the month of September, to educate employees of the company in methods of handling freight so as to cut down loss, damage and errors. The campaign will be under the general supervision of R. G. Fagin, superintendent of freight protection, under whose jurisdiction special committees have been appointed on each division to direct the campaign. The company plans at the same time to educate shippers to the value of proper marking, packing and loading of their consignments.

Photographs On Commutation Tickets

The New York Central, following its experimental introduction of a rule requiring holders of season tickets to furnish their portraits to be pasted on the ticket (or its case) announces that this requirement will be put in effect, on September 1, at a large number of stations; all those embraced in zones which, roughly, extend from points 30 miles from New York to those 75 miles distant. The principal stations included in these zones, on the different divisions, are: Hudson River division: Poughkeepsie (73 miles), Beacon, Cold Spring, Garrison, Peekskill, Croton and Ossining.

Putnam division: Brewster (54 miles), Carmel, Mahopac, Yorktown Heights, Briarcliff Manor (27 miles).

Harlem division: Pawling (64 miles), Patterson, Brewster, Croton Falls, Golden's Bridge, Lake Mahopac, Katonah, Mt. Kisco and Pleasantville (31 miles).

West Shore: Highland (73 miles), Newburgh, Cornwall, West Point and Haverstraw (33 miles).

The railroad will furnish the case or pocket in which to carry the ticket, and the buyer must provide a photograph 1¼ in. square, the same picture to be used 12 months.

From Poughkeepsie to New York the one-way fare is $2.63, while the cost of a ride on a monthly ticket is only 31 cents. The announcement says that, at one station, under the experi-

mental introduction of the picture requirement, the sales of commutation tickets decreased 41 per cent the first month; indicating a loss, at that one station, of $90,000 a year. The company appeals to its commuters to aid in putting a stop to this injustice.

Magistrates Do Not Punish Tramps

Since the editorial note with above title was written, the following press dispatch from Albany, N. Y., has appeared:

"Railroad officers have asked the State Constabulary to aid them in their effort to drive hoboes off their property and discourage the knights of the road in their efforts to steal train rides and other things. Freight trains are infested by non-paying passengers and some of these characters are vicious. Freight conductors and brakemen have been robbed by thugs. In two instances last week murder was committed. Seasoned railroad men say that never within their recollection has there been such a raft of tramps jumping trains as there are today. They say they are virtually taking their lives in their hands when walking along to inspect the cars of their trains at night. Detectives employed by the railroads are doing their best to cope with the situation, but do not seem to make much headway. It it not unusual for a crew of railroad detectives to apprehend as many as twenty tramps on a single freight train.

"In many instances railroad detectives have been compelled to release their prisoners because they cannot get them jugged. Peace officials of most of the smaller towns situated along railroad lines refuse to jail these tramps, and let them go under suspended sentence, the reason being these towns cannot afford to keep the tramps in their lockups for several days. It is said that one town, where an obliging magistrate developed the habit of sending railroad tramps to the cooler, is about $2,000 in debt through expenditures incurred in caring for these prisoners."

Western Roads Refuse Brotherhoods' Demands

The demands of the "Big Four" railway brotherhoods, the Switchmen's Union of North America, and the Order of Railroad Telegraphers to wipe out the recent wage cut, withdraw all further demands for wage decreases, and withdraw all demands for elimination of time and one-half for overtime refused by the railroads last week, as noted in the *Railway Age* of August 20, page 383. The Western roads, in their statement, issued by A. W. Trenholm (C., St. P., M. & O.), chairman, said:

"A proper regard for the public interest in the operation of the railroads does not permit the officers of the railroads to give assurance that such requests for further decreases as have been made will be withdrawn. This committee has no knowledge as to how many railroads have made requests for further decreases, but there is a demand on the part of the public for reductions in freight and passenger rates, and such reductions cannot be made under the present labor costs. There is no assurance that the cost of living will not be decreased within the next few months, and for the railroads to take the position that there would be no requests for decreases in wages, presented in lawful and orderly manner to the board, there could be no justification. As to the elimination of time and one-half for overtime in train and yard service, the railroads, with a proper regard for the public interest and their affairs, cannot give the assurance sought. This committee realizes that many railroads have certain rules in their schedules which are not in keeping with the rulings and principles laid down by the Railroad Labor Board and cannot bind themselves to refrain from asking relief from such burdensome and expensive conditions where they exist."

The demands of the Brotherhoods for the restoration of the rates of pay in effect prior to the recent wage cut was declined, with the following statement: "In their duty to the public as imposed upon them by the Transportation Act, the railroads must perforce put into effect and maintain decreases in wages just as they recognize the authority of the board in giving effect to increases such as were granted by Decision No. 2, which increased the pay of railroad employees approximately $600,000,000 per annum."

Leaders of the train service brotherhoods met in Cleveland on August 23 to prepare ballots, to be sent out to the whole membership, setting forth the general situation and calling for a vote.

Commission and Court News

Interstate Commerce Commission

The Pere Marquette Ry. has asked the Commission for a certificate of public convenience to abandon a line in Claire county, Mich.

Intrastate rates charged by the carriers in Tennessee on stone and gravel, c. l., for use in the construction of public highways and consigned to federal, state, or local authorities, have been found by the Interstate Commerce Commission to result in undue prejudice to shippers of interstate traffic. Rates are prescribed by the commission to relieve such discrimination, to become effective October 13. Rates on common brick and sewer pipe, c. l., were found not unduly preferential.

The commission has amended the regulations governing the transportation of dangerous articles to provide (beginning September 1) that arsenic, Paris Green, arsenate of lead, calcium arsenate, and other strongly poisonous articles must not be offered or accepted for shipment in bulk, but must be packed in strong and tight containers which will prevent sifting or escape of contents in transit, but sintered arsenical flue dust may be shipped between plants in steel gondola cars equipped with suitable covers.

State Commissions

The Public Utilities Commission of Ohio has sent to the Interstate Commerce Commission a protest against the suspension of the reduced freight rates recently announced by the Detroit, Toledo & Ironton. The Ohio commission declares such action unjust and a usurpation of authority, and conducive to great hardship to the people of Ohio.

THE SECRETARY OF AGRICULTURE, testifying before the Interstate Commerce Commission in its investigation into grain rates, said that he was assured that Argentine wheat could be laid down in Europe or in the Eastern ports of this country cheaper than wheat from Chicago. The re-establishment of the rates which were in force prior to August 26 last year was urged by nearly every witness for the grain shippers at the hearing, which continued before the commission the greater part of last week. Secretary Wallace supported their plea, although he did not claim that the difficulties of the farmers were caused entirely by the increase in freight rates.

Photo by Ewing Galloway, N. Y.

American Car Materials Ready at Portland, Ore., for Shipment to China

Foreign Railway News

Mexican Locomotive Situation Improves

According to Assistant Trade Commissioner Cornell, 130 locomotives have been purchased in this country by the Mexican government. Of these, 85 were obtained on a rental basis with the view of ultimate purchase and 45 by outright purchase. On these cash payments of from 15 to 20 per cent have already been made. These purchases presumably do not include the recent purchase of 65 locomotives from the Baldwin Locomotive Works.

American Participation in Electrification in Italy

LONDON

The electrical technical mission of the Italian government which visited the United States for the purpose of studying the American railways has returned and an official statement was issued from which it appears that a mission of American financiers and representatives of American railway companies will shortly go to Italy in order to arrange for American participation in the electrification of the Italian State Railways.

South African Railway and Harbor Extensions

LONDON.

According to the estimates of expenditures on capital and betterment works for the year ending March 31, 1922, the new program of expenditure on the South African Railways and Harbors will involve a total amount of £2,778,082 (approximately $13,501,478 at the normal rate of exchange). Of this it is estimated that additions to railway lines will involve £627,992 (or $3,052,041) and rolling stock £972,000 ($4,724,920), while £1,132,090 ($5,501,957) is estimated for expenditure on harbors.

Proposed Denationalization of Swiss Railways

There is a strong movement for denationalizing the railways of Switzerland, according to the Railway Gazette (London). It is well known, says the Gazette, that there has been a good deal of dissatisfaction with the working of the Swiss Railways for some time and this has culminated, after 25 years of nationalization, in the agitation for abolition of state ownership and control. An initiated measure is now going the rounds of the citizenry and if 50,000 voters sign it the matter must go to the congress and be submitted to a referendum.

The Extent of the Railways in Central America

LONDON.

At the present time the railways of the Central American states which propose to form a Federation, are as follows, according to the Economic Trade Review (London):

	Area sq. miles	Number of inhabitants	Railway miles
British Honduras	8,270	40,000	...
Costa Rica	18,680	45,500	349
Guatemala	43,600	1,842,000	614
Honduras	44,000	600,000	357
Nicaragua	49,400	800,000	171
Salvador	13,120	1,200,000	264
Panama	33,190	400,000	298
Panama Canal Zone	425	30,000	...

Austrian Railway Situation

LONDON.

Before the war the Austrian State railways owned 1,180 miles of track of which only 462 miles is left to it, according to Engineering Progress (London). There remain only 300 passenger cars and 3,200 freight cars. Repairs are badly in arrears. Piece work, however, has been restored in the railway shops with a resultant increase of 25 per cent in output, and by working ten hours overtime a week this has been improved by a further 31 per cent. The cost of rolling stock has increased over seven times what it was in December, 1919, and at the present time freight cars cost 80 times as much as they did before the war. Definite results for the year 1920 are not yet at hand, but it is estimated that there will be a deficit of 600,000,000 kronen ($150,000,000 at normal exchange, $800,000 at prevailing exchange).

Railway Tunnel Under Thames Proposed

The river Thames widens rapidly after leaving London on its eastward course and no means is provided of crossing it east of London. Because of this fact railways in the east of England in moving traffic north and south have to move their trains through London, greatly increasing the congestion at that point. Certain capitalists now are seeking governmental sanction to construct a tunnel under the river at Gravesend to provide a railway connection between the north and south. The tunnel proposed would be 2¾ miles in length and would cost in the neighborhood of $25,000,000 (at par exchange). North of the river a new line of railway would be built to connect with the Midland, the Great Eastern, the Great Northern and the London Northwestern. South of the river a connection would be provided with the channel ports over the rails of the Southeastern & Chatham.

Southern Pacific Claims Against the Mexican Government

According to authoritative information received from the City of Mexico, the Mexican government may not accept the Southern Pacific estimate of damage to its lines in that country. At least, there is a difference of more than $5,000,000, United States currency, in the figures fixed by the government engineer, Federico M. Torres, and the claim which the Southern Pacific has submitted for payment. Mr. Torres recently finished an investigation of the damage to the Southern Pacific of Mexico, incurred during the revolutionary period, and he has just made a report placing the amount at 14,000,000 pesos, equivalent to $7,000,000 United States currency. Some time ago the Southern Pacific put in a claim for more than $12,000,000, to cover the damage to the property. It is reported that the government plans to investigate all of the larger claims for banditry and revolutionist damages that have been or may be submitted to it.

The Needs of the Rumanian Railways

LONDON.

The Bulletin of Economic Intelligence for May issued by the Banque Marmorosch, Blank et Cie., insists upon the importance of transport as affecting the financial question in Rumania.

M. N. Mielescu, formerly Director-General of the Rumanian railways, attributes all the difficulties of transport not to the want of trucks but to a shortage of locomotives. Before the war there were 1,000 locomotives in good condition for 1,864 miles of railroad, while now there are only 1,000 locomotives in bad condition for 7,457 miles of railroad owned by Greater Rumania. This state of affairs, he says, must be remedied at all costs. The sidings are crowded with thousands of locomotives which cannot be used because there are no means of repairing them. New engines, therefore, must be bought; the old locomotives must be repaired either abroad or within the country; and the railway engineering works must be remodelled and new works erected at various centers. According to published information 635 locomotives have been ordered abroad, 175 of which are for delivery in 1922, and 460 in 1923. Contracts have also been made with the Rumanian and foreign firms for the overhauling and repair of all locomotives put out of service since the war. By the beginning of the year 1923, the number of locomotives running will be equal to the pre-war strength, and after that all locomotives repaired abroad will go to swell the traffic. The position, therefore, is not desperate, but, unfortunately, the present shortage prevents the country profiting from the very high prices obtainable for commodities. There is also another aspect, the government having been forced to negotiate long-term loans abroad in order to obtain the necessary funds to cover the purchase of new rolling stock and the cost of repairs.

Equipment and Supplies

Locomotives

THE CHICAGO, ROCK ISLAND & PACIFIC is inquiring for 10 Mikado type locomotives.

Freight Cars

THE GEORGIA RAILWAY is making repairs to 125 box cars, in its shops at Augusta.

THE PEKIN-KALGAN (China) is inquiring through the car builders, for 200 gondola cars, of 40-tons capacity.

THE CHICAGO, ROCK ISLAND & PACIFIC is inquiring for 200 gondola cars and is also asking for bids for the repair of 500 all-steel general service cars.

THE ERIE has entered into a contract with the Greenville Steel Car Company, Greenville, Pa., for the repair of 500 coal cars, of 50 tons capacity.

The ILLINOIS CENTRAL, reported in the *Railway Age* of August 6, as inquiring for prices on the repair of 900 miscellaneous box and gondola cars, is now asking for figures on the repair of 1,250 gondola cars.

ARGENTINE STATE RAILWAYS.—The Argentine Ministerio de Obras Publicas, Buenos Aires, is asking for bids until September 2, for 70 broad gage freight cars, of 45 tons capacity, for use on the Port Railways, according to a cablegram from Commercial Attache Edward F. Feely, at Buenos Aires.

Iron and Steel

MITSUI & COMPANY, New York, are asking for bids until August 27, for 4,000 tons of 60-lb. rail and 200 tons of splice bars, for the Japanese Government Railways.

THE CHICAGO, BURLINGTON & QUINCY will receive bids until 12 o'clock noon September 2, for 5,250 miscellaneous steel plates; 5,310 miscellaneous steel bars; 330 miscellaneous tank steel plates; 2,190 miscellaneous angle steel bars, and 400 channels.

Track Specialties

THE CANADIAN NATIONAL RAILWAYS will receive bids at Toronto, Ont., until 12 o'clock, noon, September 17, 1921, for 1,000,000 railway ties.

Machinery and Tools

THE SOUTH MANCHURIA RAILWAY has ordered one 88 in. lathe, through Frazer & Company, New York.

THE ILLINOIS CENTRAL has ordered from the Niles-Bement-Pond Company one 90-in. heavy driving wheel lathe, also a car axle lathe.

THE PITTSBURGH & LAKE ERIE has ordered from the Niles-Bement-Pond Company a double-end wheel press and a car wheel borer.

THE MISSOURI PACIFIC has ordered from Manning, Maxwell & Moore, Inc., New York, a 42 in. motor-driven drill press, for its Sedalia, Mo., shops and a 23B Greenlee Brothers mortiser for its Dupo, Ill., shops.

Signaling

The new work on the CHESAPEAKE & OHIO, between Charlottesville, Va., and Staunton, 40 miles, is proceeding satisfactorily. The bonding of the track and the erection of the pole line will be finished before long. The American Automatic Train Control Corporation, which is installing its automatic train stops on this section, has given to the Union Switch & Signal Company a contract for the roadside apparatus, including color-light signals, three-indication (44 signals), with relays and other apparatus; an aggregate of material amounting to about $90,000.

Miscellaneous

THE NEW YORK CENTRAL will receive bids until 12 o'clock noon, September 9, for its present requirements of lead covered cable, switch points, slide plates and braces for repairs to switches, switch levers, tongue switches, tongue slides for repairs to switches, and crossing frogs; and for its shops requirements until October 31, 1921, of black galvanized and blue annealed sheets, driving and truck tires for freight switching and passenger service, seamless steel tubes for repairs to locomotives and stationary boilers, axles for car and locomotive repairs, wire nails and staples, steel bars, steel shapes and steel plates.

Trade Publications

SUPERHEATERS FOR SMALL LOCOMOTIVES.—The advantages derived from the use of superheated steam are recognized so generally by railroad motive power officers that it would seem hardly necessary again to call attention to them. Gains equivalent to those obtained from the application of superheaters to large railroad locomotives are being realized on small industrial locomotives of 40 ton weight or under such as are used around industrial plants, in quarries, gravel pits, mines, logging operations, construction work, etc., but as the owners of locomotives of these types are usually not so familiar with the details of locomotive design as are railroad motive power officers, superheaters have not been so generally used on their motive power. Bulletin No. 9 of the Superheater Company shows what has already been accomplished in the industrial field and will be of interest to anyone who is responsible for the purchase or operation of small industrial locomotives.

Railway Construction

ATCHISON, TOPEKA & SANTA FE.—This company, which was noted in the *Railway Age* of August 6 (page 270) as having closed bids for additions to its power house at Albuquerque, N. M., to cost approximately $150,000, has awarded the contract for this work to E. F. Ware, El Paso, Tex.

CHICAGO, ROCK ISLAND & PACIFIC.—This company will construct a new car repair shop at Trenton, Mo., with company forces.

CHICAGO, ROCK ISLAND & PACIFIC.—This company has awarded a contract to Joseph E. Nelson & Sons, Chicago, for the construction of an 8-stall roundhouse at Amarillo, Tex. The building will have brick walls and a timber frame and roof, and is estimated to cost about $35,000.

CHICAGO UNION STATION.—This company is accepting bids for electrical equipment for the substation to be installed in connection with its new railway terminal building, Chicago.

GREAT NORTHERN.—This company contemplates the construction of new ore loading docks at Superior, Wis., to cost about $1,500,000, replacing wooden structures which are no longer adequate.

ILLINOIS CENTRAL.—This company, which was noted in the *Railway Age* of July 23 (page 184) as accepting bids for the construction of a frame enginehouse, with dimensions of 60 ft. by 200 ft., at Herrin, Ill., has awarded the contract for this work to G. A. Johnson & Son, Chicago. The company has also awarded a contract for widening the bridge approaching its passenger platform at the Randolph street station, Chicago, to the A. Lund Construction Company, Chicago.

MISSOURI PACIFIC.—This company has awarded a contract to Joseph E. Nelson & Sons, Chicago, for the construction of 5 car-repair sheds. These sheds will be of frame construction, 40 ft. wide by 240 ft. long, and will be built at Crane, Mo., Council Bluff, Sedalia, Jefferson City and Nevada. The total cost of this work is estimated at about $55,000

Supply Trade News

W. G. Ryan has been appointed special representative of the railroad service department of the **Addressograph Company,** with offices at Chicago.

A. Clarke Morre has resigned as assistant to president of the **Globe Seamless Tube Company,** with which he has been connected since November, 1919.

F. C. Severin, New York manager, with office at 50 Church street, of the **Betts Machine Company,** Rochester, N. Y., has resigned to go into other business.

L. M. Waite, formerly sales manager of the National Acme Company, Cleveland, Ohio, and later sales manager of the Springfield Automatic Screw Machine Company, Fitchburg, Mass., has been appointed sales manager of the **Garvin Machine Company,** New York, succeeding Frank A. Power, resigned.

The Stowell Company, South Milwaukee, Wis., has effected a merger with the **Pelton Steel Company,** Milwaukee. The Pelton Steel Company name will be retained and the plant will continue to be operated by the same organization, under the direction of the officers and directors of the Stowell Company.

Walter R. Pflasterer, railway sales engineer of the National Carbon Company in the Chicago territory, has resigned, effective September 1, to become sales manager of the newly organized **Direct Sales Company,** with headquarters in the Manhattan building, Chicago. This company will act as a manufacturers' representative, handling railroad accounts in the Chicago district. Mr. Pflasterer was born at California, Pa., on May 30, 1881. His first railway work was on construction in the signal department of the Union Pacific at Omaha. Later he was transferred to the signal engineer's office, where he had charge of all material for the large construction program in 1906 and 1907. Early in 1907 he was appointed chief clerk to the signal engineer and about a year later he entered the signal department of the Southern Pacific in California. In 1908 Mr. Pflasterer entered the service of the Chicago, Rock Island & Pacific as chief clerk to the signal engineer, which position he held until August 15, 1913, when he resigned to enter the railroad sales department of the Yale & Towne Manufacturing Company at New York City. Mr. Pflasterer remained with this company until December 15, 1914, when he resigned to become sales engineer of the National Carbon Company, Cleveland, Ohio, in the railroad sales department.

W. R. Pflasterer

John C. Robinson has resigned as manager of New England sales at Boston, Mass., for William Wharton, Jr., & Co., Inc., Easton, Pa., after 30 years of continuous service. Mr. Robinson will in future devote his time to his interests in the firm of **Harrington, Robinson & Co.,** Boston. The Boston office of the **Taylor-Wharton Iron & Steel Company,** High Bridge, N. J., and **William Wharton, Jr., & Co., Inc.,** is now at 201 Devonshire street, in charge of Walter H. Allen.

Railway Financial News

ARKANSAS HARBOR TERMINAL.—*Asks Authority to Issue Notes.*—This company has asked authority from the Interstate Commerce Commission to issue $50,000 of prior lien 5-year 6 per cent gold notes to be pledged with the Secretary of the Treasury as collateral security for a loan of like amount from the revolving fund.

ATCHISON, TOPEKA & SANTA FE.—*Authorized to Abandon Branch Line.*—The Interstate Commerce Commission has issued a certificate authorizing this company to abandon a branch line in Kay County, Okla.

CENTRAL VERMONT.—*Asks Authority to Issue Bonds.*—This company has asked authority from the Interstate Commerce Commission to issue $147,000 of refunding mortgage 5 per cent gold bonds dated May 1, 1920, for the purpose of reimbursing its treasury for expenditures from income in payment of a similar amount of certain equipment gold notes.

CHICAGO & EASTERN ILLINOIS.—*Annual Report.*—The income account for the year ended December 31, 1920, is as follows:

Railway operating revenue (March 1 to December 31)	$31,307,448
Railway operating expenses (March 1 to December 31)	29,763,451
Net revenue from railway operations (March 1 to December 31)	1,543,997
Railway tax accruals	1,120,400
Railway operating income	418,590
Net railway operating income	2,128,214
Miscellaneous income	*257,160
Gross income	2,385,374
Total deductions	881,032
Balance of income	1,504,342

*Does not include the following income properly due the receiver:

Lease of road, January and February, 1920	$666,666
Lease of road (balance for year 1918)	1,053,999
Lease of road (balance for year 1919	1,053,999
Miscellaneous income (guaranty period, March to August, 1920)	2,000,000
Total	4,774,665
Surplus	6,279,007

CHESAPEAKE & OHIO.—*Again Defers Dividend*—The directors on August 19 again deferred action on the usual 2 per cent semi-annual common dividend. Action was deferred at the previous meetings in May and June.

DULUTH & IRON RANGE.—*Annual Report.*—The income account for the year ended December 31, 1920, compares with the previous year, as follows:

	1920	1919
Railway operating revenue (10 months)	$10,781,732	.....
Compensation accrued (January and February, 1920; year 1919)	392,540	$2,355,242
Gross income	11,471,821	2,578,652
Railway operating expenses	5,695,087	70,286
Tax accruals	1,159,418	183,748
Interest on funded debt outstanding	407,550	407,550
Total deductions	8,721,492	858,169
Net income	2,750,329	1,720,484
Income applied to sinking and other reserve funds	1,254,447	.....
Balance transferred to profit and loss account	1,495,882	1,720,484

The operating revenues and expenses in detail and the principal traffic statistics for 1920 compare with 1919, as follows:

	1920	1919
OPERATING REVENUES		
Freight	$9,927,608	$7,114,957
Passenger	302,067	271,884
Total operating revenues	$11,075,952	$7,961,606
OPERATING EXPENSES		
Maintenance of way and structures	$1,460,264	$1,050,529
Maintenance of equipment	1,515,095	1,195,559
Traffic	12,813	5,811
Transportation	3,118,080	2,141,178
General	280,063	175,893
Total operating expenses	$6,394,559	$4,573,155
PASSENGER TRAFFIC		
Number of passengers carried	288,190	266,608
Passengers carried one mile	9,985,533	9,241,030
Average revenue received per passenger per mile (cents)	3.024	2.942
Average distance traveled per passenger (miles)	34.65	34.66
FREIGHT TRAFFIC		
Number of tons carried	11,467,755	8,459,559
Tons of freight carried one mile	802,360,944	556,110,990
Average revenue received per ton per mile (cents)	1.237	1.279
Average distance hauled per ton (miles)	70	65.7
Average number of tons revenue freight carried per train mile	815.86	777.07

EASTLAND, WICHITA FALLS & GULF.—*Asks Authority to Issue Stock and Bonds.*—This company has asked authority from the Interstate Commerce Commission to issue to purchasers all stock in the company subscribed and fully paid, not to exceed $1,000,000; to issue its bonds to the amount of $551,000 for which the company already has received full payment; and to secure the bond issue by a first mortgage and deed of trust on all property of the carrier.

GREAT NORTHERN.—*Loan Approved.*—The Interstate Commerce Commission has approved a loan of $586,000 to this company to enable it to provide itself with new equipment. The carrier is required to finance $588,320.

The Commission has also approved a loan of $15,000,000 to the Great Northern to enable that railway to meet maturing indebtedness. The loan must be repaid within six months from September 1. It is secured by the pledge of $18,844,000 of the applicant's general mortgage, series A, 7 per cent gold bonds, due July 1, 1936, executed and delivered by the applicant to the First National Bank of the City of New York, trustee.

Authorized to Sell Equipment Notes.—The Great Northern has been granted authority by the Interstate Commerce Commission to sell not more than $606,000 of equipment gold notes in connection with the procurement of certain equipment under an agreement to be dated August 1, 1921, with the General American Car Company, the vendor, and the First National Bank of New York City, trustee, at an aggregate cost of $1,145,000. The sale of the notes to the trustee is proposed at a price 97½ per cent of par.

GULF, MOBILE & NORTHERN.—*Annual Report.*—The corporate income account for the year ended December 31, 1920, compares with the previous year, as follows:

	1920	1919
Total operating revenue	$3,597,143	.....
Total operating expenses	4,164,830	.....
Net operating revenue	567,687	.....
Railway tax accruals	142,643	.....
Operating income	710,348	.....
Net operating income	794,955	.....
Income from lease of road (January and February, 1920; year 1919)	103,051	$504,550
Government guaranty accrued	728,000	.....
Total non-operating income	877,145	35,649
Gross income	82,190	496,171
Total deductions from gross income	66,363	90,662
Net income	15,827	405,509

The operating revenues and expenses in detail and the principal traffic statistics for 1920 compare with 1919, as follows:

OPERATING REVENUES	1920	1919
Freight	$3,181,066	$2,112,677
Passenger	711,629	567,466
Total operating revenue	$4,147,960	$2,823,506
OPERATING EXPENSES		
Maintenance of way and structures	$1,440,842	$637,502
Maintenance of equipment	1,093,938	686,546
Traffic	133,984	71,060
Transportation	2,026,246	1,298,091
General	215,999	166,515
Total operating expenses	$4,909,102	$2,847,579
PASSENGER TRAFFIC		
Number of passengers carried	1,102,084	918,906
Number of passengers carried one mile	23,380,047	19,308,501
Average miles carried—all passengers	21.21	21.01
Average revenue per passenger mile (cents)	.03044	.02938
FREIGHT TRAFFIC		
Number of tons carried	1,746,126	1,367,870
Number of tons carried one mile	237,272,834	125,361,616
Average miles hauled—all freight	135.89	91.65
Average revenue per ton mile of freight (cents)	.01471	.01902

LOUISVILLE & NASHVILLE.—*Application to Issue Capital Stock Amended.*—This company has amended its application to the Interstate Commerce Commission, which asked for authority to issue $53,000,000 of capital stock for distribution as a stock dividend pro rata among its stockholders. In its original application the carrier also asked authority to execute and deliver its first and refunding mortgage to secure divers series of bonds, to issue series A of these bonds aggregating $28,615,000, and to sell $12,753,000 of this amount outright to J. P. Morgan & Co. The applicant now asks authority from the commission to procure the authentication and delivery of it of the entire $28,615,000 of bonds but to sell only $12,753,000 of them now.

LOUISIANA & PACIFIC.—*Asks Authority to Abandon Line.*—This company has asked the Interstate Commerce Commission for a certificate of public convenience to abandon a line in Beauregard Parish, La.

PEARL RIVER VALLEY.—*Authorized to Issue Notes.*—The Interstate Commerce Commission has authorized this company to issue from time to time unsecured promissory notes not at any one time to exceed $27,000 in renewal of certain outstanding notes.

SALT LAKE & UTAH.—*Asks Authority to Issue Stock.*—This company has asked authority from the Interstate Commerce Commission to issue $500,000 of its 7 per cent cumulative first preferred stock and to pledge the same to secure a loan of $700,000 from the Treasury revolving fund.

ST. LOUIS SOUTHWESTERN.—*Annual Report.*—A review of this company's annual report for 1920 appears on another page of this issue.

VALDOSTA, MOULTRIE & WESTERN.—*May Not Be Junked.*—A company is being organized by W. J. Vereen, of Moultrie, Ga., to purchase this road from C. L. Jones, its present owner, and operate it as a going concern. The road was sold on April 9, 1921 to Mr. Jones for $87,000 with the right to dismantle the line. Seven miles of it have been junked already.

WATERLOO, CEDAR FALLS & NORTHERN.—*Authorized to Pledge Bonds and Sell Stock.*—This company has been authorized by the Interstate Commerce Commission to pledge to the United States $2,200,000 of general mortgage 7 per cent gold bonds, of which $1,575,000 is for collateral security for a loan from the revolving fund and $625,000 is collateral for a loan from the Railroad Administration. The applicant has also been authorized to sell at par $700,000 of common stock and to issue lease warrants aggregating $132,159 in connection with the procurement of equipment.

WESTERN PACIFIC.—*Annual Report.*—The corporate income account for the year ended December 31, 1920, compares with the previous year as follows:

	1920	1919
Total operating revenue (March 1-Dec. 31)	$13,595,790	.....
Total operating expenses (March 1-Dec. 31)	10,311,410	.....
Net revenue from railway operations	3,284,380	.....
Total operating expenses	10,311,410	.....
Net revenue from railway operations	3,284,380	.....
Railway tax accruals	670,079	$148,313
Total operating income	2,613,487	Def. 148,313
Income from lease of road	*317,368	1,900,350
Total non-operating income	2,050,685	2,370,030
Gross income	4,664,171	2,221,717
Interest on funded debt	1,202,755	1,213,248
Total deductions from gross income	2,247,960	1,495,936
Net income	2,416,212	725,781

*Includes rental due from United States Railroad Administration for January and February, 1920, at $1,900,350 per annum. Final settlement with the United States Railroad Administration fixing compensation at $3,200,000 per annum increased this item to $533,976 and for year 1919 to $3,200,000.

The Western Pacific did not accept the government guaranty.

Partial Payments of Guaranty

The Interstate Commerce Commission has certified to the Treasury partial payments of guaranty to the following roads:

Detroit, Bay City & Western	$4,500
Mississippi Eastern	8,500

Final Settlements with Railroad Administration

The Railroad Administration reports the following final settlements, and has paid out to the several roads the following amounts:

Atlantic Coast Line	$5,500,000
Boston Terminal Company	95,364

The payment of these claims in final settlement is largely made up of balance of compensation due, but includes all other disputed items as between the railroad companies and the Administration during the 26 months of federal control.

Dividends Declared

Buffalo & Susquehanna.—Common, 1¾ per cent, quarterly, payable September 30 to holders of record September 15.

New Orleans, Texas & Mexico.—1½ per cent, quarterly, payable September 1 to holders of record August 25.

Annual Report

St. Louis Southwestern Railway Company—Thirtieth Annual Report

NEW YORK, June 15, 1921.

To the Stockholders of the
St. Louis Southwestern Railway Company:

Herewith is submitted the Thirtieth annual report of your Company, for the calendar year ended December 31, 1920.

The report of Mr. J. M. Herbert, President, which follows, gives the operating revenues, expenses and operating results, for the two months of Federal control, January and February, and the ten months of Corporate control, March to December, inclusive, as well as the financial and physical condition of the property.

Expenditures were made during the year 1920 for additions and betterments, in the sum of $1,959,993.47, this representing an increase over similar expenditures for previous year of $548,393.22. No change was made in the Capital Stock of the Company during the year. The Funded Debt was decreased during the year 1920 in the sum of $260,000.00 through payment of Equipment Trust Obligations at maturity.

The Board of Directors takes pleasure in expressing thanks to the officers and employees for their co-operative and efficient services during the year.

By Order of the Board of Directors,

EDWIN GOULD,
Chairman.

ST. LOUIS, MO., June 1, 1921.

MR. EDWIN GOULD,
Chairman of the Board of Directors,
New York, N. Y.

Dear Sir:—

Herewith is submitted report, for the year ended December 31, 1920, of the operation and affairs of the Company, its financial and physical condition, et cetera, at the close of the year.

In accordance with proclamation issued by the President of the United States under date of December 24, 1919, Federal control and operation of the railroads of the United States terminated February 29, 1920, and the property of the Company was accordingly returned to the Corporate officers for operation and management, effective March 1, 1920.

GUARANTY PERIOD, MARCH 1 TO AUGUST 31, 1920, INCLUSIVE.

Under the terms of the Transportation Act, 1920, the law enacted by Congress for the return of the railroads to their owners, there is provided, among other things, a guaranty of net railway operating income for the six months period, March 1 to August 31, 1920, inclusive, equal to one-half the annual compensation, certified by the Interstate Commerce Commission, as due the carriers during Federal control.

Acceptance of the guaranty, as provided in Section 209 of the Act, required the carrier to turn back to the Treasury of the United States, any sums earned in excess of the guaranty. The terms of this section also placed a limit upon expenditures for maintenance of way and structures and maintenance of equipment, and charged the Interstate Commerce Commission with responsibility for fixing the amount that would be allowed in operating expenses, in determining the net income. Effort was accordingly made to ascertain from the Commission what its policy would be regarding maintenance expenditures during the guaranty period. No commitment being obtained, there was no means of knowing the amount of money that could be appropriated and used for maintenance work. The Company had been in controversy with the United States Railroad Administration on account of inadequate and inefficient maintenance of its property during Federal control, and, upon return to Corporate management, there was immediate necessity for large maintenance expenditures, and these conditions, as you know, were fully weighed before decision was reached to not accept the terms of the guaranty under the Transportation Act, and to operate the property upon our own resources and responsibility, effective March 1, 1920.

Comparison of Operating and Income Results, for period March 1 to August 31, 1920, on basis of acceptance and non-acceptance of Federal Guaranty, follows:

	March 1 to August 31, 1920.	
ACCOUNTS.	On Basis of Non-Acceptance of Federal Guaranty.	On Basis of Acceptance of Federal Guaranty.
Operating Revenues	$14,511,930.25	$14,511,930.25
Operating Expenses	12,077,251.16	10,483,965.92*
Net Revenue from Railway Operations	$2,434,679.09	$4,027,964.33
Tax Accruals and Uncollectible Railway Revenues	525,281.54	525,281.54
Railway Operating Income	$1,909,397.55	$3,502,682.79
Nonoperating Income—Net	346,369.08†	346,369.08†
Gross Income	$2,255,766.63	$3,849,051.87
Amount of Guaranty	—	1,949,012.88
Amount that would have reverted to Interstate Commerce Commission had the Federal Guaranty been accepted	—	$1,900,038.99
Excess Income over Amount of Guaranty disregarding credit due account Maintenance Expenditures in excess of estimated Federal Allowance	$306,753.75	
Excess Maintenance Expenditures	1,593,285.24	
Total in Excess of Guaranty	$1,900,038.99	

*If the guaranty under the Transportation Act of 1920 had been accepted, the Company would have been restricted in its expenditures for Maintenance of Way and Structures and Maintenance of Equipment to an amount set up by the United States Railroad Administration as sufficient. On this basis $1,593,285.24 would have been eliminated from operating expenses for the period, March 1 to August 31, 1920, thereby increasing the amount to be turned over to the United States Government.

†Excludes Corporate Nonoperating Income account not contributing to Guaranty Income.

The operating results for the guaranty period demonstrated the wisdom of the decision to not accept the guaranty, as well as the earning capacity of the property. During this period a greater volume of traffic was handled than in any corresponding period in the history of the Company, notwithstanding the handicap imposed by the outlaw switchmen's strike, which became effective April 8, and continued in full force and effect until the latter part of June.

The decision of the United States Railroad Labor Board, increasing the rate of pay of all classes of employees approximately 21%, was announced July 19; however, the increases were made retroactive to May 1. This resulted in an additional cost to be absorbed in operating expenses of the guaranty period of approximately $900,000. Notwithstanding these difficulties, the operations for this period produced net railway operating income of $2,255,766.63, compared with $1,949,012.88, the amount of income that would have accrued to the Company under the terms of the guaranty, an increase of $306,753.75.

In addition, there was expended for maintenance of the property during this period a total of $5,943,725.18, or $1,593,285.24 in excess of the estimated amount the Company would have been permitted to spend under the terms of the guaranty.

The excess income produced, $306,753.75, plus the excess amount expended for maintenance, $1,593,285.24, produced a total of $1,900,038.99, net railway operating income earned in excess of the amount the Company would have been permitted to retain if the terms of the guaranty had been accepted; all of which was used for the benefit of the property.

The increase in freight and passenger rates authorized by the Interstate Commerce Commission, did not become effective on interstate traffic until August 25, and the increased rates applying to intrastate traffic, both freight and passenger, were resisted by the various State Commissions, some of which were not put into effect until 1921, so the revenues for this period received practically no benefit from the increased rates, whereas the operating expenses include approximately $900,000, for increased rates of pay to employees; therefore, the net operating income produced for this period is based almost entirely on the old rates for service to the public and the higher wage rates to employees during four months of the period.

Following the termination of Federal control, occasioned by excellent service rendered the public by and through the several departments, this company obtained a large volume of freight traffic.

Owing to the movement of this traffic our revenues did not reflect the general decline in business until the latter part of the year and we, accordingly, continued to make liberal appropriations from current income for maintenance, in order to partially restore the physical condition of the property.

YEAR ENDED DECEMBER 31, 1920.

During the year under review, the track mileage operated was 1775.98 miles as compared with 1754.50 miles for the previous year, the increase in the mileage being due principally to the resumption of operation of our freight trains over the Chicago & Eastern Illinois Railroad between Thebes, Ill., and Olive Branch, Ill., and the Illinois Central Railroad between Olive Branch, Ill., and Cairo, Ill., from March 1 to December 31, 1920, which service was suspended during Federal control.

Immediately following will be found condensed statements showing the financial results from operation for the combined Federal and Corporate periods of the year 1920 compared with 1919.

CORPORATE AND FEDERAL FINANCIAL RESULTS FROM OPERATION—SYSTEM INCOME STATEMENT FOR CALENDAR YEAR.

	Year Ended		
ITEM.	Dec. 31, 1920.	Dec. 31, 1919.	+Increase. —Decrease.
AVERAGE MILES OPERATED	1,775.98	1,754.50	+ 21.48
OPERATING INCOME:			
Railway Operating Revenues	$31,020,958.11	$20,661,162.63	+$10,359,795.48
Railway Operating Expenses	25,886,055.67	18,497,241.15	+ 7,388,814.52
Net Revenue from Railway Operations	$5,134,902.44	$2,163,921.48	+ $2,970,980.96
Railway Tax Accruals	$1,247,677.36	$853,182.36	+ $394,495.00
Uncollectible Railway Revenues	1,777.38	4,182.07	— 2,404.69
Total	$1,249,454.74	$857,364.43	+ $392,090.31
Railway Operating Income	$3,885,447.70	$1,306,557.05	+ $2,578,890.65
NONOPERATING INCOME	1,848,391.25	1,659,684.46	+ 188,706.79
GROSS INCOME	$5,733,838.95	$2,966,241.51	+ $2,767,597.44
DEDUCTIONS FROM GROSS INCOME	3,310,095.49	3,895,834.23	— 585,738.74
NET INCOME	$2,423,743.46	Def.$929,592.72	+ $3,353,336.18
FEDERAL NET INCOME	Def.536,093.34	Def.2,275,501.45	+ 1,739,408.11
CORPORATE NET INCOME	$2,959,836.80	$1,345,908.73	+ $1,613,928.07
DISPOSITION OF CORPORATE NET INCOME:			
Income appropriated for Invest. in Phys. Property	$2,959,836.80	—	+ $2,959,836.80
INCOME BALANCE TRANSFERRED TO PROFIT AND LOSS	—	$1,345,908.73	— $1,345,908.73

CORPORATE PROFIT AND LOSS STATEMENT.

	Year Ended		
ITEM.	Dec. 31, 1920.	Dec. 31, 1919.	+Increase. —Decrease.
CREDITS:			
Credit Balance (at beginning of fiscal period)	$10,238,914.50	$8,941,859.04	+ $1,297,055.46
Credit Balance Transferred from Income	—	1,345,908.73	— 1,345,908.73
Unrefundable Overcharges	5,602.21	—	+ 5,602.21
Donations	1,899.02	424.54	+ 1,474.48
Miscellaneous Credits:			
Adjustment of Equipment Retired During Federal Control	142,799.78	—	+ 142,799.78
Miscellaneous	84,632.57	15,571.53	+ 69,061.04
Total	$10,473,848.08	$10,303,763.84	+ $170,084.24

Debits:				
Surplus Appropriated for Invest. in Phys. Property	$1,899.02	$424.54	+	$1,474.48
Loss on Retired Road and Equipment—Road	17,911.89	Cr. 8,344.69	+	26,256.58
Loss on Retired Road and Equipment—Equipment	Cr. 72,713.74	71,342.29	—	144,056.03
Miscellaneous Debits.				
Miscellaneous	12,358.87	1,427.20	+	10,931.67
Balance, Credit, Carrier to General Balance Sheet	**10,514,392.04**	**10,238,914.50**	+	275,477.54
Total	$10,473,848.08	$10,303,763.84	+	$170,084.24

Notwithstanding the heavy maintenance charges to which reference has previously been made, we closed the year with a net income of $2,959,836.80, all of which was appropriated for investment in physical property.

Operating Revenues.

The total operating revenues for year 1920 amounted to $31,020,958.11 as compared with $20,661,162.63 for previous year, an increase of $10,359,795 48, or 50.14%. This most gratifying increase is attributable in some measure to the increase in freight rates and passenger fares granted by the Interstate Commerce Commission, effective August 26, 1920, as to interstate traffic and subsequently extended to intrastate traffic, as more fully explained herein under the caption "Rate Situation," but is mainly due to a marked increase in the volume of freight traffic handled.

Statement showing comparison of freight and passenger traffic handled during the year 1920 and previous year will be found in the report. It will be interesting to note the increase in number of tons of revenue freight handled one mile, amounting to 675,316,142 ton-miles or 59.21%. Passengers carried one mile shows a small decrease.

Operating Expenses.

Total operating expenses for the year amounted to $25,886,055.67 compared with $18,497,241.15 for the previous year, an increase of $7,388,814.52, or 39.95%. While the percentage of increase in operating expenses is large, it will be noted it is considerably under the increase in operating revenues. The increased volume of traffic will account for a large portion of the increased operating expenses, but other unavoidable conditions occasioned no small part of same. In addition to the heavy maintenance charges to which reference has heretofore been made, the operating expenses for the year include, approximately, $1,900,000.00, representing the increase in the payrolls for months May to December, 1920, inclusive, growing out of the increases paid, in compliance with order of the United States Railroad Labor Board promulgated July 19, and were also unfavorably affected during the Federal control period of January and February and for a short period thereafter, by the payment of large sums for overtime.

Following are some of the major items of maintenance and betterment work accomplished during period of Corporate management, March 1 to December 31, 1920, and cost of same:

Maintenance of Way and Structures—	
Purchase and Application of 642,505 cross ties	$1,138,993.29
Adding cross ties inserted during two months of Federal control, makes a total of 777,612 ties applied during year, an increase of 130,111 compared with 1919.	
Application of 449,181 tie plates to soft wood ties in main line tracks	158,138.14
At beginning of Federal control there were not in our tracks, main lines, branches or side tracks, any other than hardwood ties, white oak, red oak, etc. The United States Railroad Administration, during their management, permitted the hardwood tie practically to go out of use and inserted in our tracks, main line and others, 679,035 pine ties, a considerable number of which were untreated and some of which were placed in track without tie plates. At termination of Federal control practically all of the ties on hand were pine and it was, therefore, impossible to revert to exclusive use of hardwood ties until the matter of production could be worked out, which required several months. This made necessary application of tie plates on light traffic branches that would not have been required if sufficient hardwood ties had been available. The quantity of hardwood ties, which we were able to secure, has rapidly increased to the extent that for the year 1921 all ties inserted in main lines, including main lines of branches, are of hardwood.	
Application of 74,718 cubic yards of ballast	139,888.00
Filling and abandoning 9,040 feet of trestle work	143,236.90
Application of drain tile, widening cuts and fills, and ditching	560,580.88
Reconstruction of telegraph lines	30,687.59
Laying of 75.76 miles of new 85-pound rail, replacing worn 75-pound rail	353,298.28
Total	$2,524,823.08
Maintenance of Equipment—	
Rehabilitation of freight equipment	$568,216.53
Restoration of 1,358,178 miles in mileage capacity of locomotives, in excess of miles consumed in service	178,884.63
Total	$747,101.16
Grand Total	$3,271,924.24

Contract was also made with the Baldwin Locomotive Works for purchase of twenty-one consolidation freight locomotives, ten of which were received and placed in service during year, thereby adding 496,400 pounds tractive power. The total cost of the ten locomotives was $518,928.48.

Car and Train Loading.

The average load in tons per loaded freight car mile and per loaded freight train mile for the past ten years was as follows:

Average load in tons per loaded car mile, including Company material:

Year Ended June 30.	St. L. S-W. Ry. Co.	St. L. S-W. Ry. Co. of Texas.	System.
1912	18.02	16.44	17.54
1913	18.36	16.44	17.78
1914	18.22	16.19	17.62
1915	17.95	16.57	17.55
1916	18.18	17.40	17.95
Year Ended December 31.			
1916	18.52	17.30	18.17
1917	20.89	19.34	20.46
1918	24.10	21.32	23.34
1919	22.46	19.97	21.78
1920	24.69	22.41	24.10

Average load in tons per train mile, including Company material:

Year Ended June 30.	St. L. S-W. Ry. Co.	St. L. S-W. Ry. Co. of Texas.	System.
1912	447.25	211.19	340.58
1913	461.11	214.50	349.49
1914	455.14	199.32	337.65
1915	457.53	208.21	345.21
1916	489.88	252.71	386.40
Year Ended December 31.			
1916	485.57	250.67	390.40
1917	616.62	286.10	474.06
1918	670.00	282.99	499.75
1919	680.37	299.48	516.91
1920	728.87	344.92	576.08

Rate Situation.

As previously stated, the operating revenues for the past calendar year were favorably affected by increases prescribed in interstate freight rates and passenger fares by the Interstate Commerce Commission's order in Ex parte 74, effective August 26, 1920. The increases in the interstate freight rates varied according to the geographical groups designated in the order. The Western group in which our lines are included was granted increases approximating 35 per cent. Interstate passenger fares were increased to 3.6 cents per mile.

Negotiations were entered into with the State Commissions for increases covering intrastate traffic resulting in increases in intrastate passenger fares to 3.6 cents per mile and increases in freight rates in keeping with the interstate rates authorized by the Interstate Commerce Commission. The effective dates of the increases authorized in the various states were as follows:

Passenger Fares:	Freight Rates:
Missouri, September 1, 1920.	Texas, August 26, 1920.
Arkansas, January 1, 1921.	Missouri, September 1, 1920.
Texas, March 14, 1921.	Arkansas, September 1, 1920.
Louisiana, April 6, 1921.	Louisiana, October 1, 1920.

Agricultural and Industrial.

Excellent crops generally were produced in the territory traversed by our lines during the year 1920, although the prevailing high cost of labor and materials created an excessive expense. On the other hand a material reduction in prices had taken place by harvest time, resulting in much disappointment to the farmers generally, and in heavy losses to many of them.

Cotton production tributary to our line during 1920 was above normal, and, in addition thereto, there was a large quantity of cotton carried over from previous year which had been withheld from market in anticipation of higher prices. When the 1920 crop had matured the demand, both domestic and foreign, had greatly diminished and prices had declined accordingly. This reduced demand and the unwillingness of producers to accept the prevailing prices delayed the movement and thus, in some measure, unfavorably affected our revenues during latter part of 1920, and first half of 1921. We hope, however, to receive our share of this cotton when moved.

A systematic program of instructions to farmers as to the scientific cultivation of crops, preservation of orchards, eradication and prevention of animal and plant diseases was carried on by this company through practical demonstrations which no doubt contributed to the satisfactory results for the past year from the standpoint of quality as well as quantity of production, and which should be conducive of permanent improvement in the agricultural conditions adjacent to our line.

New East St. Louis Freight Terminal.

Reference has been made in previous reports to the organization of the Valley Terminal Railway for the purpose of constructing a complete freight terminal at Valley Junction, St. Clair County, Illinois, adjoining East St. Louis. This terminal was completed and taken over for operation by the United States Railroad Administration as of August 1, 1918. At termination of Federal control, it was leased from the Valley Terminal Railway, and, since April 1, 1920, has provided our terminal facilities at East St. Louis, the joint terminal arrangement with the Missouri Pacific at Dupo, Illinois, having been discontinued as of that date.

By reason of having our independent terminal facilities at East St. Louis during the period of the outlaw switchmen's strike, which was declared April 8, 1920, and continued in full force and effect until the latter part of June, we were enabled to handle a large volume of traffic through the St. Louis-East St. Louis gateway with practically no delay. Had we been without our separate and exclusive terminal facilities during the acute period of this strike, we would have been deprived of the entire gross revenue accruing on business handled through this terminal during this period. It is conservatively estimated that the revenue thus derived, after deducting the cost of performing the service, was sufficient to cover the entire amount invested in the facilities and leave a margin of profit.

Substantial economy has also been effected in the operating cost compared with the cost under the joint operating arrangement with the Missouri Pacific

Operation of Freight Terminal at Illmo, Mo.

Effective September 1, 1920, the Missouri Pacific Railroad Company withdrew from participation in the joint operation of the terminal at Illmo and we have accordingly enjoyed the exclusive use of these facilities since that date.

The combined traffic of both companies had outgrown the facilities and their continued use by the Missouri Pacific would have required considerable extension and enlargement in order to serve both companies. Substantial economy has resulted through our exclusive operation.

Memphis Freight Traffic

On March 1, 1920, the Missouri Pacific Railroad Company served the required twelve months' written notice cancelling its contract with this company covering the handling of freight traffic between Fair Oaks, Arkansas, and Memphis, Tennessee. Subsequent conferences were held with the officers of that company to negotiate a new agreement upon a fair and equitable basis. No disposition, however, was shown to negotiate a new agreement on a basis that would permit this company to compete for traffic moving through the Memphis gateway. We accordingly opened negotiations with the Chicago, Rock Island and Pacific for the use of their line between Brinkley, Arkansas, and Briark, Arkansas, and with the Illinois Central for the use of their freight terminal facilities at Memphis, Tennessee.

Both of these companies were favorably disposed and, after conferences with their officers, empowered to act, agreements were drawn covering the use of their facilities, the terms of which will provide a substantial saving to this company, compared with the terms offered by the Missouri Pacific. We are also enabled to operate our own freight trains into and out of Memphis, and are therefore definitely established as a Memphis line.

In addition to the operating economies which the new arrangement will bring about, there are other benefits which will accrue to this company through association with above mentioned companies, among which will be participation in the handling of a considerable volume of competitive traffic which we have not heretofore enjoyed.

[Advertisement]

Railway Officers

Executive

J. C. Murray, whose appointment as receiver of the Missouri & North Arkansas, with headquarters at Harrison, Ark., was announced in the *Railway Age* of July 23 (page 185), was born at Chicago, on August 21, 1885, and entered railroad service on February 26, 1902, with the Cincinnati, New Orleans & Texas Pacific. He served in various positions in the traffic department of this company until July 20, 1907, when he was employed in the auditing department of the New York, Chicago & St. Louis. A year later he was employed in the traffic department of the New Orleans & North Eastern, and in December, 1909, he took a similar position on the Louisville & Nashville. Mr. Murray entered the service of the Missouri & North Arkansas as a tariff compiler in August, 1911, and served successively as chief clerk in the freight department, general freight agent, general freight and passenger agent, and freight traffic manager. He was serving in the latter position at the time of his appointment as receiver.

Operating

T. F. Allen has been appointed supervisor of transportation of the Northwestern Pacific, with headquarters at San Francisco, effective August 15, with special assignment to the staff of the general manager.

Traffic

H. H. Ellis has been appointed advertising manager of the Chicago, Rock Island & Pacific, with headquarters at Chicago, effective August 1, succeeding W. D. Braddock, who has been granted an extended leave of absence.

Engineering, Maintenance of Way and Signaling

J. W. Williams, chief engineer of the Northwestern Pacific, with headquarters at San Francisco, Cal., has been appointed chief engineer of the Western Pacific, with the same headquarters, effective August 15, succeeding **T. J. Wyche,** who has been appointed consulting engineer.

G. H. Hicks, principal assistant engineer of the Northwestern Pacific, with headquarters at San Francisco, Cal., has been appointed acting chief engineer, effective August 15, succeeding J. W. Williams, resigned to become chief engineer of the Western Pacific.

J. E. Fanning, has been appointed roadmaster of the Iowa division of the Illinois Central, with headquarters at Fort Dodge, Iowa, succeeding **E. I. Rodgers,** who has resigned to become chief engineer of the Peoria & Pekin Union, with headquarters at Peoria, Ill., effective August 17.

Mechanical

E. J. Brennan has been appointed superintendent of motive power of the Chicago Great Western, with headquarters at Oelwein, Iowa, effective August 15, succeeding H. C. Eich, resigned.

T. Allison has been appointed road foreman of engines of the Pasco division of the Northern Pacific, with headquarters at Pasco, Wash., effective August 17, succeeding R. E. Wilkinson, who has been granted an extended leave of absence.

G. C. Seidel, master mechanic of the Minneapolis & St. Louis, with headquarters at Marshalltown, Iowa, has been appointed mechanical engineer of the Chicago & Alton, with headquarters at Bloomington, Ill., effective August 13, succeeding J. H. Leyonmarck, deceased.

Purchasing and Stores

C. C. Kyle has been appointed acting general storekeeper of the Northern Pacific, with headquarters at St. Paul, Minn., effective August 17, succeeding O. C. Wakefield, who has

Obituary

L. P. A. Weissenbruch, inspector general of the Belgian State Railways and general secretary of the International Railway Congress, died at Brussels on August 7, after an extended illness.

Epes Randolph, president of the Southern Pacific of Mexico and the Arizona Eastern, died at Tucson, Ariz., on August 22. Mr. Randolph was born in Lunenberg County, Va. He entered railroad service in 1876 in the engineering department of railways in the eastern part of the United States that were controlled by Collis P. Huntington, and he early became one of Mr. Huntington's most trusted lieutenants. When the Chesapeake & Ohio built into Cincinnati, Mr. Randolph was in charge of the construction of its bridge across the Ohio river. In 1894 it became necessary for him to go to Arizona on account of his health. He was out of railway service for a year and then went with Mr. Huntington on the Southern Pacific.

Epes Randolph

After Mr. Harriman acquired control of the Southern Pacific, Mr. Randolph maintained much the same relationship to him that he had to Mr. Huntington. Among other things he was made president of the California Development Company, a Southern Pacific enterprise which had much to do with the development of the Imperial valley in California, and was president of this company in 1906, when the entire valley was threatened with desolation by an overflow of the Colorado river. The work done to save that section of the country was carried on under the supervision of Mr. Randolph, whose engineering experience and skill, coupled with his remarkable sagacity for quick action, probably saved the region. Subsequently, when the Southern Pacific decided to extend its lines into Mexico, Mr. Randolph was chosen to handle that work.

Previous to March, 1891, Mr. Randolph was superintendent and chief engineer of the Elizabethtown, Lexington & Big Sandy, the Kentucky & South Atlantic and the Ohio & Big Sandy, all now parts of the Chesapeake & Ohio. For two years from the date mentioned he held the same titles on the Newport News & Mississippi Valley and the Ohio Valley, and in January, 1893, his jurisdiction was extended over the Chesapeake, Ohio & Southwestern, all three of which roads are now parts of the Illinois Central. He was appointed superintendent of the Yuma and Tucson divisions of the Southern Pacific in May, 1895, and was promoted to general manager of the Los Angeles Railway and the Pacific Electric Railway in 1901. In February, 1902, he was elected president of the Gila Valley, Globe & Northern, the Maricopa & Phoenix, the Arizona & Colorado, the Cananea, Yaqui River & Pacific and the Sonora Railway, and since June, 1909, when he was made vice-president of the Southern Pacific Railway of Mexico, he has been general manager also of these lines. In February, 1910, Mr. Randolph was also elected vice-president and general manager of the Arizona Eastern, which absorbed the Gila Valley, Globe & Northern, and in October of the following year, he was elected president of the Southern Pacific and the Arizona Eastern, which position he held at the time of his death.